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The Iowa Administrative Code Supplement is published biweekly pursuant to Iowa Code section 17A.6. The Supplement contains replacement chapters to be inserted in the loose-leaf Iowa Administrative Code (IAC) according to instructions included with each Supplement. The replacement chapters incorporate rule changes which have been adopted by the agencies and filed with the Administrative Rules Coordinator as provided in Iowa Code sections 7.17 and 17A.4 to 17A.6. To determine the specific changes in the rules, refer to the Iowa Administrative Bulletin bearing the same publication date.

In addition to the changes adopted by agencies, the replacement chapters may reflect objection to a rule or a portion of a rule filed by the Administrative Rules Review Committee (ARRC), the Governor, or the Attorney General pursuant to Iowa Code section 17A.4(6); an effective date delay imposed by the ARRC pursuant to section 17A.4(7) or 17A.8(9); rescission of a rule by the Governor pursuant to section 17A.4(8); or nullification of a rule by the General Assembly pursuant to Article III, section 40, of the Constitution of the State of Iowa.

The Supplement may also contain replacement pages for the IAC Index or the Uniform Rules on Agency Procedure.

INSTRUCTIONS

FOR UPDATING THE

IOWA ADMINISTRATIVE CODE

Agency names and numbers in bold below correspond to the divider tabs in the IAC binders. New and replacement chapters included in this Supplement are listed below. Carefully remove and insert chapters accordingly.

Editor's telephone (515)281-3355 or (515)242-6873

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Replace Analysis
Replace Reserved Chapter 96 with Chapter 96

Education Department[281]

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Replace Chapters 21 and 22
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Replace Chapter 102

Educational Examiners Board[282]

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Racing and Gaming Commission[491]

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Replace Reserved Chapter 24 with Chapter 24

Public Safety Department[661]

Replace Analysis
Remove Reserved Chapters 42 to 50, Chapter 51, and Reserved Chapter 52
Insert Reserved Chapters 42 to 52
Replace Reserved Chapters 227 to 230 with Reserved Chapter 227

Insert Chapter 228 and Reserved Chapters 229 and 230
Replace Chapter 251

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[Prior to 10/22/86, see Insurance Department[510], renamed Insurance Division[191] under the "umbrella" of Department of Commerce by the 1986 Iowa Acts, Senate File 2175]

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CHAPTER 96
SYNTHETIC GUARANTEED INVESTMENT CONTRACTS

191—96.1(505,508) Authority. This chapter is promulgated by the commissioner of insurance pursuant to Iowa Code section 505.8.
[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.2(505,508) Purpose.

96.2(1) The purpose of this chapter is to prescribe:

a. The terms and conditions under which life insurance companies may issue group annuity contracts and other contracts issued in connection with group annuity contracts that in whole or in part establish the insurer's obligation by reference to a segregated portfolio of assets that is not owned by the insurer;

b. The essential operational features of the segregated portfolio of assets; and

c. The reserve requirements for these contracts.

96.2(2) This chapter is intended to aid in the timely approval of such products by the commissioner and to recognize that timely approval is essential, given the competitive nature of the market for these products.
[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.3(505,508) Scope and application. This chapter applies to that portion of a group annuity contract or other contract issued in connection with group annuity contracts described in rule 191—96.4(505,508), definition of "synthetic guaranteed investment contract," and issued by a life insurer that functions as an accounting record for an accumulation fund and has benefit guarantees relating to a principal amount and levels of interest at a fixed rate of return specified in advance. The fixed rate of return will be constant over the applicable rate periods, and may reflect prior and current market conditions with respect to the segregated portfolio but may not reference future changes in market conditions. This chapter applies to all contract forms filed on or after January 18, 2012. Contract forms that have been filed before January 18, 2012, need not be refiled with the commissioner.
[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.4(505,508) Definitions. For purposes of this chapter, the following definitions shall apply:

"Account assets" means the assets in the segregated portfolio plus any assets held in the general account or a separate account to meet the asset maintenance requirements.

"Actuarial opinion and memorandum" means the opinion and memorandum of the valuation actuary required to be submitted to the commissioner pursuant to subrule 96.10(8).

"Affirmatively approved" means approval of an insurer's plan of operation for a class of contracts containing the form of contract under review after the plan of operation associated with the class of contracts has been reviewed by the insurer's domiciliary insurance department and the plan of operation has been found to be in compliance with this chapter by the domiciliary insurance department. Affirmatively approved does not mean approval as a result of the deemer provision.

"Appointed actuary" means the qualified actuary appointed or retained either directly by or by the authority of the board of directors through an executive officer of the company to prepare the annual statement of actuarial opinion for the company as a whole pursuant to Iowa Code section 508.36.

"Asset maintenance requirement" means the requirement to maintain assets to fund contract benefits in accordance with rule 191—96.10(505,508).

"Class of contracts" means the set of all contracts to which a given plan of operation pertains.

"Commissioner" means the Iowa commissioner of insurance.

"Contract value record" means an accounting record, provided by the contract in relation to a segregated portfolio of assets, that is credited with a fixed rate of return over regular periods and that is used to measure the extent of the insurer's obligation to the contract holder. The fixed rate of return credited to the contract value record is determined by means of a crediting rate formula or declared at the inception of the contract and is valid for the entire term of the contract.

"Crediting rate formula" means a mathematical formula used to calculate the fixed rate of return credited to the contract value record during any rate period and based in part upon the difference between the contract value record and the market value record amortized over an appropriate period. The fixed rate of return calculated by means of this formula may reflect prior and current market conditions with respect to the segregated portfolio, but may not reference future changes in market conditions.

"Duration" means, with respect to the segregated portfolio assets or guaranteed contract liabilities, a measure of price sensitivity to changes in interest rates, such as the Macaulay duration or option-adjusted duration.

"Fair market value" means a reasonable estimate of the amount that a knowledgeable buyer of an asset would be willing to pay, and a knowledgeable seller of an asset would be willing to accept, for the asset without duress in an arm's length transaction. In the case of a publicly traded security, the fair market value is the price at which the security is traded or, if no price is available, a price that appropriately reflects the latest bid and asked prices for the security. For all non-publicly traded assets, fair market value will be determined in accordance with valuation practices customarily used within the financial industry.

"Investment guidelines" means a set of written guidelines, established in advance by the person with investment authority over the segregated portfolio, to be followed by the investment manager. The guidelines shall include a description of:

1. The segregated portfolio's investment objectives and limitations;
2. The investment manager's degree of discretion;
3. The duration, asset class, quality, diversification, and other requirements of the segregated portfolio; and
4. The manner in which derivative instruments may be used, if at all, in the segregated portfolio.

"Investment manager" means the person (including the contract holder) responsible for managing the assets in the segregated portfolio in accordance with the investment guidelines in a fiduciary capacity to the owner of the assets.

"Market value record" means an accounting record provided by the contract to reflect the fair market value of the segregated portfolio.

"NAIC" means the National Association of Insurance Commissioners.

"Permitted custodial institution" means a bank, trust company or other licensed fiduciary services provider.

"Plan of operation" means a written plan meeting the requirements of paragraph 96.5(2)*"a."*

"Qualified actuary" means an individual who meets the qualification standards set forth in 191—paragraph 5.34(5)*"b."*

"Rate period" means the period of time during which the fixed rate of return credited to the contract value record is applicable between crediting rate formula adjustments.

"Segregated portfolio" means:

1. A portfolio or subportfolio of assets to which the contract pertains that is held in a custody or trust account by the permitted custodial institution and identified on the records of the permitted custodial institution as special custody assets held for the exclusive benefit of the retirement plans or other entities on whose behalf the contract holder holds the contract; and
2. Any related cash or currency received by the permitted custodial institution for the account of the contract holder and held in a deposit account for the exclusive benefit of the retirement plans or other entities on whose behalf the contract holder holds the contract.

"Spot rate," corresponding to a given time of benefit payment, means the yield on a zero-coupon noncallable and nonprepayable United States government obligation maturing at that time, or the zero-coupon yield implied by the price of a representative sampling of coupon-bearing, noncallable and nonprepayable United States government obligations in accordance with a formula set forth in the plan of operation. To the extent that guaranteed contract liabilities are denominated in the currency of a foreign country rated in one of the two highest rating categories by an independent, nationally recognized United States rating agency acceptable to the commissioner and are supported by investments denominated in the currency of the foreign country, the spot rate may be determined by

reference to substantially similar obligations of the government of the foreign country. For liabilities other than those described above, the spot rate shall be determined on a basis mutually agreed upon by the insurer and the commissioner.

"Synthetic guaranteed investment contract" or *"contract"* means a group annuity contract or other contract issued in connection with a group annuity contract that in whole or in part establishes the insurer's obligations by reference to a segregated portfolio of assets that is not owned by the insurer.

"Unilateral contract termination event" means an event allowing the insurer to unilaterally and immediately terminate the contract, without future liability or obligation to the contract holder.

"United States government obligation" means a direct obligation issued, assumed, guaranteed or insured by the United States or by an agency or instrumentality of the United States government.

"Valuation actuary" means the appointed actuary or, alternatively, a qualified actuary designated by the appointed actuary to render the actuarial opinion pursuant to rule 191—96.10(505,508). Written documentation of any such designation shall be on file at the company and available for review by the commissioner upon request.

"Value of guaranteed contract liabilities" means the same as set forth in subrule 96.10(6).

[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.5(505,508) Financial requirements and plan of operation. A contract may not be delivered or issued for delivery in this state unless the issuing insurer is licensed as a life insurance company in this state and is financially qualified under the provisions of subrule 96.5(1). In addition, a domestic insurer may not deliver or issue for delivery, either in this state or outside this state, a contract unless the insurer has satisfied the requirements of subrule 96.5(2) with respect to the class of contracts to which the contract belongs.

96.5(1) An insurer will be financially qualified under this rule if its most recent statutory financial statements reflect at least $1 billion in admitted assets or $100 million in capital and surplus, and its risk-based capital results do not place it at a regulatory level of action. In lieu of the requirements in the preceding sentence, the insurer may be required to satisfy such other financial qualification requirements set forth by the commissioner as having been deemed necessary or appropriate in a particular case to protect the insurer's policyholders and the public.

96.5(2) A domestic insurer will satisfy the requirements of this subrule with respect to a class of contracts if the insurer has filed with the commissioner a plan of operation pertaining to the class of contracts, together with copies of the forms of contract in the class, and the filing of the plan of operation has been approved or has not been disapproved within the 60-day period following the date of filing, in which event the plan of operation shall be deemed approved.

a. The plan of operation for a class of contracts shall describe the financial implications for the insurer of the issuance of contracts in the class and shall include at least the following:

(1) A statement that the plan of operation will be administered in accordance with the requirements prescribed by the commissioner pursuant to this chapter, along with a statement that the insurer will comply with the plan of operation in its administration of the contract;

(2) A statement describing the methods and procedures used to value statutory liabilities for purposes of rule 191—96.10(505,508);

(3) A description of the criteria used by the insurer in approving the investment manager for the segregated portfolio of assets associated with a contract in the class, if the investment manager is an entity other than the insurer or is controlling, controlled by or under common control with the insurer;

(4) A description of the insurer's requirement for reports concerning the assets in each segregated portfolio and transactions involving the assets and a description of how the insurer can use the information in a report to determine that the segregated portfolio is being managed in accordance with its investment guidelines. The insurer shall require that the report be prepared no less frequently than quarterly and include a complete statement of segregated portfolio holdings and their fair market value;

(5) A demonstration of financial results for one or more sample contracts from the class of contracts showing, at a minimum, the projected contract value records, the applicable fixed rate or rates of return, and the projected market value records and describing how the investments in the segregated portfolio

reflect provision for benefits insured by the contract and how the contract value and market values and the rates of return may be affected by changes in the investment returns of the segregated portfolio and by reasonably anticipated deposits to and withdrawals from the segregated portfolio by the contract holder, and any advances made by the insurer to the contract holder. The sample contracts shall be chosen to reasonably represent the range of results that could be expected from possible combinations of contract provisions of all contracts within the class. The demonstration shall include at least three hypothetical return scenarios: level, increasing, and decreasing. For each of these scenarios, at least three withdrawal scenarios shall be modeled: zero, moderate, and high. The commissioner may require additional scenarios if deemed necessary to fully understand the risks under the class of contracts. The demonstration period shall be the greater of five years or the minimum period the insurer must underwrite the risk;

(6) A statement that all contracts in the class of contracts satisfy the requirement of rule 191—96.9(505,508) regarding unilateral contract terminations, together with a description of all termination events, discontinuation triggers and options, notice requirements, corrective action procedures, all other contract safeguards, and the procedures to be followed when a unilateral contract termination event occurs;

(7) A description of the allowable investment parameters (such as objectives, asset classes, quality, duration and diversification requirements applied to the assets held within the segregated portfolio) to be reflected in the investment guidelines applicable to each contract issued in the class to which the submitted plan of operation applies; and a description of the procedures that will be followed by the insurer in evaluating the appropriateness of any specific investment guidelines submitted by the contract holder. If the insurer chooses to operate a contract in accordance with investment guidelines that do not conform to the criteria established pursuant to this subparagraph, the nonconforming set of investment guidelines shall be filed with the commissioner in accordance with the filing requirements of this subrule;

(8) An unqualified opinion by a qualified actuary with expertise to evaluate the adequacy of the consideration charged by the insurer for the risks it has assumed with respect to the contracts in the class to which the plan of operation applies;

(9) A statement that the actuarial opinion and memorandum required by rule 191—96.10(505,508) shall include, with respect to the class of contracts to which the plan of operation applies:

1. If a payment has been made by the insurer in the prior reporting period under a contract in the class, the amount of aggregate risk charges (net of administrative expenses) for contracts in the class and the aggregate amount of any losses incurred; and

2. An inventory of all material unilateral contract termination events in the class that have not been cured within the time period specified and that have occurred during the prior reporting period for which the company decided not to terminate the contract.

b. Review of the plan of operation by the commissioner may necessitate requests for information to supplement that furnished pursuant to paragraph 96.5(2)*"a."* Replies made in compliance with such requests for information should be made in sufficient detail that any follow-up correspondence can be held to a minimum.

[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.6(505,508) Required contract provisions and filing requirements. A contract may not be delivered or issued for delivery in this state unless the contract satisfies the requirements of subrule 96.6(1) and the issuing insurer has satisfied the requirements of subrule 96.6(2) with respect to the contract.

96.6(1) The contract shall:

a. Provide that the assets to which the contract pertains and for which a contract value record is established will be maintained in a segregated portfolio of a permitted custodial institution;

b. Grant the insurer the right to perform audits and inspections of assets held in the segregated portfolio from time to time upon reasonable notice to the permitted custodial institution;

c. Provide that the insurer will receive prior notice of and the right to approve any appointment or change of investment manager;

d. Give a description of how the contract value record will be determined and, where applicable, adjusted by a crediting rate formula;

e. State the maximum rate period between crediting rate formula recalculations that will be permitted, if any;

f. Provide the insurer with the right to refuse to recognize any new deposits to the segregated portfolio unless there is a written agreement between the insurer and the contract holder as to the permissible levels and timing of new deposits;

g. Clearly identify all circumstances under which insurer payments or advances to the contract holder are to be made;

h. Clearly identify the types of withdrawals made on a market value basis;

i. Provide either a fixed maturity schedule or a settlement option permitting the contract holder to receive the contract value record over time, provided that no unilateral contract termination event has occurred; and

j. Include a provision stating, or substantially similar to, the following:

No waiver of remedies by the insurer that is a party to this contract, following the breach of any contractual provision of the contract, or of the investment guidelines applicable to it, or the failure to enforce the provisions or guidelines, which constitutes grounds for termination of the contract for cause by the insurer, and which breach or failure is not cured within 30 days following the insurer's discovery of it, shall be effective against an insurance commissioner in any future rehabilitation or insolvency proceedings against the insurer unless approved in advance, in writing, by the commissioner.

96.6(2) An insurer will satisfy the filing and approval requirements of this rule with respect to a contract if the insurer has filed the form of the contract with the commissioner, the form is accompanied by the items specified in paragraphs 96.6(2)*"a," "b"* and *"c,"* and the form has been approved or has not been disapproved within the 30-day period following the date of filing, in which event the form of contract shall be deemed approved. Notwithstanding the foregoing, the requirement for filing and approval of the form of contract may be waived at the discretion of the commissioner.

a. The form of contract filed for approval shall be accompanied by a statement that the contract meets the conditions of subrule 96.6(1).

b. The form of contract filed for approval shall be accompanied by a statement:

(1) Specifying the range of variation of variable contract provisions, if any, that could have a material effect on the risk assumed by the insurer under the contract, including withdrawal methodology, crediting rate formula and termination events;

(2) Describing how the fair market value will be determined;

(3) Describing the crediting rate formula, if any, and how it will operate to take into account the difference between the market value record and the contract value record over time; and

(4) Listing events that give the insurer the right to terminate the contract immediately.

c. If the plan of operation pertaining to the class of contracts to which the contract belongs:

(1) Has been affirmatively approved by the insurance commissioner of the state in which the issuing insurer is domiciled, the form of contract filed for approval shall be accompanied by a statement verifying the receipt of approval and indicating that the approval was an affirmative approval.

(2) Has been deemed approved in the state in which the issuing insurer is domiciled, the form of contract filed for approval shall be accompanied by a statement indicating that the issuing insurer has met the requirements for deemed approval.

(3) Has not been approved, either affirmatively or by deemer, in the state in which the issuing insurer is domiciled, the form of contract filed for approval shall be accompanied by a statement of this fact, together with a plan of operation pertaining to the contract.

[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.7(505,508) Investment management of the segregated portfolio.

96.7(1) The investment manager must have full responsibility for the management of all segregated portfolio assets within the constraints specified in the investment guidelines.

96.7(2) The investment guidelines shall be submitted to the insurer for underwriting review before the contract becomes effective.

96.7(3) If the insurer accepts a proposed change to the investment guidelines or allows the contract to operate in accordance with investment guidelines that do not conform to the criteria established in subparagraph 96.5(2)*"a"*(7), approval of the nonconforming investment guidelines must be obtained pursuant to subrule 96.5(2).

[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.8(505,508) Purchase of annuities. For contracts that are group annuity contracts and that make available to the contract holder the purchase of immediate or deferred annuities for the benefit of individual members of the group, an annuity may not be purchased without the delivery of the contractually agreed-upon consideration in cash to the insurer from the segregated portfolio for allocation to the insurer's general account or a separate account. The insurer shall collect adequate consideration for the cost of annuities purchased under contract option by transfer from the segregated portfolio.

[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.9(505,508) Unilateral contract terminations. A contract subject to this chapter shall allow the insurer to unilaterally and immediately terminate, without future liability of the insurer or obligation to provide further benefits, upon the occurrence of any one of the following events that is material and that is not cured within 30 days following the insurer's discovery of it:

96.9(1) The investment guidelines are changed without the advance consent of the insurer and the investment manager is not controlling, controlled by or under common control with the insurer;

96.9(2) The segregated portfolio, if managed by an entity that is not controlling, controlled by or under common control with the insurer, is invested in a manner that does not comply with the investment guidelines; or

96.9(3) Investment discretion over the segregated portfolio is exercised by or granted to anyone other than the investment manager.

[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.10(505,508) Reserves. This rule describes asset maintenance requirements for segregated portfolios governed by this chapter.

96.10(1) At all times, an insurer shall hold minimum reserves in the general account or one or more separate accounts, as appropriate, equal to the excess, if any, of the value of the guaranteed contract liabilities, determined in accordance with subrules 96.10(6) and 96.10(7), over the market value of the assets in the segregated portfolio less the deductions provided for in subrule 96.10(2). The reserve requirements of this subrule shall be applied on a contract-by-contract basis.

96.10(2) In determining compliance with the asset maintenance requirement and the reserve for the value of guaranteed contract liabilities specified in subrule 96.10(1), the insurer shall deduct a percentage of the market value of an asset as follows:

a. For debt instruments, the percentage shall be the NAIC asset valuation "reserve objective factor," but the factor shall be increased by 50 percent for the purpose of this calculation if the difference in durations of the assets and liabilities is more than one-half year.

b. For assets that are not debt instruments, the percentage shall be the NAIC asset valuation reserve "maximum reserve factor."

96.10(3) To the extent that expected guaranteed contract benefits are denominated in the currency of a foreign country and are supported by segregated portfolio assets denominated in the currency of the foreign country, the percentage deduction for these assets under subrule 96.10(2) shall be that for a substantially similar investment denominated in the currency of the United States.

96.10(4) To the extent that expected guaranteed contract benefits are denominated in the currency of the United States and are supported by segregated portfolio assets denominated in the currency of a foreign country, and to the extent that expected guaranteed contract benefits are denominated in the currency of a foreign country and are supported by segregated portfolio assets denominated in

the currency of the United States, the deduction for debt instruments under subrule 96.10(2) shall be increased by 15 percent of the market value of the assets unless the currency exchange risk on the assets has been adequately hedged, in which case the percentage deduction under subrule 96.10(2) shall be increased by 0.5 percent. No expected guaranteed contract benefits denominated in the currency of a foreign country shall be supported by segregated portfolio assets denominated in the currency of another foreign country without the approval of the commissioner. For purposes of this subrule, the currency exchange risk on an asset is deemed to be adequately hedged if:

a. It is an obligation of:

(1) A jurisdiction that is rated in one of the two highest rating categories by an independent, nationally recognized United States rating agency acceptable to the commissioner;

(2) Any political subdivision or other governmental unit of such a jurisdiction, or any agency or instrumentality of such a jurisdiction, political subdivision or other governmental unit; or

(3) An institution that is organized under the laws of any such jurisdiction; and

b. At all times the principal amount of the obligation and scheduled interest payments on the obligation are hedged against the United States dollar pursuant to contracts or agreements that are:

(1) Issued by or traded on a securities exchange or board of trade regulated under the laws of the United States or Canada or a province of Canada;

(2) Entered into with a United States banking institution that has assets in excess of $5 billion and that has obligations outstanding, or has a parent corporation that has obligations outstanding, that are rated in one of the two highest rating categories by an independent, nationally recognized United States rating agency, or with a broker-dealer registered with the Securities and Exchange Commission that has net capital in excess of $250 million; or

(3) Entered into with any other banking institution that has assets in excess of $5 billion and that has obligations outstanding, or has a parent corporation that has obligations outstanding, that are rated in one of the two highest rating categories by an independent, nationally recognized United States rating agency and that is organized under the laws of a jurisdiction that is rated in one of the two highest rating categories by an independent, nationally recognized United States rating agency.

96.10(5) Synthetic guaranteed investment contracts may provide for the allocation to one or more separate accounts of all or any portion of the amount needed to meet the asset maintenance requirement. If the contract provides that the assets in the separate account shall not be chargeable with liabilities arising out of any other business of the insurer, the insurer shall maintain in a distinct separate account that is so chargeable: that portion of the amount needed to meet the asset maintenance requirement that has been allocated to separate accounts, less the amounts contributed to separate accounts by the contract holder in accordance with the contract and the earnings on the contract.

96.10(6) For purposes of this chapter, the "value of guaranteed contract liabilities" is defined to be the sum of the expected guaranteed contract benefits, each discounted at a rate corresponding to the expected time of payment of the expected guaranteed contract benefit that is not greater than the maximum multiple of the spot rate supportable by the expected return from the segregated portfolio assets, and in no event greater than 105 percent of the spot rate as described in the plan of operation, pursuant to rule 191—96.5(505,508), or the actuary's opinion and memorandum, pursuant to subrule 96.10(8), except that if the expected time of payment of an expected guaranteed contract benefit is more than 30 years, it shall be discounted from the expected date of payment to year 30 at a rate of no more than 80 percent of the 30-year spot rate and from year 30 to the date of valuation at a rate not greater than 105 percent of the 30-year spot rate.

96.10(7) In calculating the value of guaranteed contract benefits:

a. All expected guaranteed contract benefits potentially available to the contract holder on an ongoing basis shall be considered in the valuation process and analysis, and the reserve held must be sufficient to fund the greatest present value of each independent expected guaranteed contract benefit. For purposes of this subrule, the right granted to the contract holder to exit the contract by discharging the insurer of its obligations under the contract and taking control of the assets in the segregated portfolio shall not be considered an expected guaranteed contract benefit.

b. To the extent that future guaranteed cash flows are dependent upon the benefit responsiveness of an employer-sponsored plan, a best estimate based on company experience, or other reasonable criteria if company experience is not available, shall be used in the projections of future cash flows.

96.10(8) Actuarial opinion and memorandum for segregated portfolios are governed by this chapter.

a. An insurer that issues a synthetic guaranteed investment contract subject to this chapter shall submit to the commissioner annually by March 1 following the December 31 valuation date an actuarial opinion and, upon request, a memorandum showing the status of the accounts as of the prior December 31. The actuarial opinion and memorandum shall be in form and substance satisfactory to the commissioner.

b. The actuarial memorandum required by this chapter is deemed to be confidential to the same extent, and under the same conditions, as the actuarial memorandum required by Iowa Code section 508.36(2)*"d"*(8).

c. Except in cases of fraud or willful misconduct, the valuation actuary shall not be liable for damages to any person (other than the insurer and the commissioner) for any act, error, omission, decision, or conduct with respect to the actuary's opinion.

d. The statement of actuarial opinion submitted in accordance with paragraph 96.10(2)*"a"* shall consist of:

(1) A paragraph identifying the valuation actuary and the valuation actuary's qualification;

(2) A scope paragraph identifying the subjects on which the opinion is to be expressed and describing the scope of the valuation actuary's work;

(3) A reliance paragraph describing those areas, if any, where the valuation actuary has deferred to other experts in developing data, procedures or assumptions;

(4) An opinion paragraph expressing the valuation actuary's opinion with respect to the matters described in subparagraphs 96.10(8)*"e"*(1) and (2); and

(5) One or more additional paragraphs which may be needed for individual companies in the following cases:

1. If the valuation actuary considers it necessary to state a qualification of the valuation actuary's opinion;

2. If the valuation actuary must disclose an inconsistency in the method of analysis used at the prior opinion date with that used for this opinion;

3. If the valuation actuary chooses to add a paragraph briefly describing the assumptions which form the basis of the actuarial opinion.

e. This paragraph describes the contents of the opinion paragraph of the actuarial opinion.

(1) The actuarial opinion shall state, after taking into account any risk charge payable, the segregated portfolio assets, and the amount of any reserve liability with respect to the asset maintenance requirement, that the account assets make adequate provision for expected guaranteed contract benefits.

(2) The opinion shall also state that:

1. Reserves for expected guaranteed contract benefits are calculated pursuant to the requirements of subrule 96.10(1);

2. After taking into account any reserve liability with respect to the asset maintenance requirement, the amount of the account assets satisfies the asset maintenance requirement;

3. The fixed-income segregated portfolio conforms to and justifies the rates used to discount expected guaranteed contract benefits for valuation pursuant to subrule 96.10(6);

4. Whether any rates used pursuant to subrule 96.10(6) to discount expected guaranteed contract benefits and other items applicable to the segregated portfolio were modified from the rate or rates described in the plan of operation filed pursuant to rule 191—96.5(505,508); and

5. The level of risk charges, if any, retained in the general account is appropriate in view of such factors as the nature of the expected guaranteed contract benefits and losses experienced in connection with contracts and other pricing factors.

f. The opinion shall be accompanied by a certificate from an officer of the insurer responsible for monitoring compliance with the asset maintenance requirements for synthetic guaranteed investment contracts describing the extent to and manner in which, during the preceding year:

(1) Actual benefit payments conformed to the benefit payment estimated to be made as described in the plan of operation;

(2) The determination of the fair market value of the segregated portfolio conformed to the valuation procedures described in the plan of operation, including a statement of the procedures and sources used during the year; and

(3) Any assets were transferred to or from the insurer's general account or any amounts were paid to the insurer by any contract holder to support the insurer's guarantee.

g. The actuarial memorandum shall:

(1) Substantially conform with those portions of 191—subrule 5.34(7) that are applicable to asset adequacy testing and that either:

1. Demonstrate the adequacy of account assets based upon cash flow analysis, or

2. Explain why cash flow testing analysis is not appropriate, describe the alternative methodology of asset adequacy testing used, and demonstrate the adequacy of account assets under that methodology;

(2) Clearly describe the assumptions the valuation actuary used in support of the actuarial opinion, including any assumptions made in projecting cash flows under each class of assets, and any dynamic portfolio hedging techniques utilized and the tests performed on the utilization of the techniques;

(3) Clearly describe how the valuation actuary has reflected the cost of capital;

(4) Clearly describe how the valuation actuary has reflected the risk of default on obligations and mortgage loans, including obligations and mortgage loans that are not investment grade;

(5) Clearly describe how the valuation actuary has reflected withdrawal risks, if applicable, including a discussion of the positioning of the contracts within the benefit withdrawal priority order pertaining to the contracts;

(6) If the plan of operation provides for investments in segregated portfolio assets other than United States government obligations, demonstrate that the rates used to discount contract liabilities pursuant to subrule 96.10(6) conservatively reflect expected investment returns, taking into account any foreign exchange risks;

(7) If the contracts provide that in certain circumstances the contracts would cease to be funded by a segregated portfolio and instead would become contracts funded by the general account, clearly describe how any increased reserves would be provided for if and to the extent these circumstances occur;

(8) State the amount of account assets maintained in a separate account that are not chargeable with liabilities arising out of any other business of the insurer;

(9) State the amount of reserves and supporting assets as of December 31 and where the reserves are shown in the annual statement;

(10) State the amount of any contingency reserve carried as part of surplus;

(11) State the market value of the segregated asset portfolio; and

(12) Where separate account assets are not chargeable with liabilities arising out of any other business of the insurer, describe how the level of risk charges payable to the general account provides an appropriate compensation for the risk taken by the general account.

96.10(9) When the insurer issues a synthetic guaranteed investment contract and complies with the asset maintenance requirements of subrule 96.10(1), the insurer need not maintain an asset valuation reserve with respect to those account assets.

96.10(10) This subrule describes the reserve valuation requirements for contracts subject to this chapter.

a. Reserves for synthetic guaranteed investment contracts subject to this chapter shall be an amount equal to the sum of the following:

(1) The amounts determined as the minimum reserve as required under subrule 96.10(1);

(2) Any additional amount determined by the insurer's valuation actuary as necessary to make adequate provision for all expected guaranteed contract benefits; and

(3) Any additional amount determined as necessary by the commissioner due to the nature of the expected guaranteed contract benefits.

b. The amount of any reserves required by paragraph 96.10(4)*"a"* may be established by either:

(1) Allocating sufficient assets to one or more separate accounts; or

(2) Setting up the additional reserves in the general account.
[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.11(505,508) Severability. If any provision of this chapter or its application to any person or circumstances is judged invalid by a court of competent jurisdiction, the judgment shall not affect or impair the validity of the other provisions of this chapter.
[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

191—96.12(505,508) Effective date. This chapter shall take effect January 18, 2012.
[**ARC 9926B**, IAB 12/14/11, effective 1/18/12]

These rules are intended to implement Iowa Code section 505.8 and chapter 508.

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EDUCATION DEPARTMENT[281]

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COMMUNITY COLLEGES

[Prior to 9/7/88, see Public Instruction Department[670] Ch 5]
[Former Ch 21 Rescinded, IAB 9/7/88]

DIVISION I
APPROVAL STANDARDS

281—21.1(260C) Definitions. For purposes of this chapter, the indicated terms are defined as follows:

"Department" means the Iowa department of education.

"Director" means the director of the department.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.2(260C) Administration.

21.2(1) *Policy manual.* A community college board of directors shall develop and maintain a policy manual which adequately describes the official policies of the institution.

21.2(2) *Administrative staff.* A community college shall develop an administrative staff appropriate to the size and the purpose of the institution and one which permits the institution to function effectively and efficiently. This administrative staff shall provide effective leadership for the major divisions of the institution including administrative services, adult and continuing education, career and technical education, college parallel education, and student services.

21.2(3) *Chief executive officer.* A community college shall have a chief executive officer who shall also be the executive officer of the board of directors. The executive officer shall be responsible for the operation of the community college with respect to its educational program, its faculty and student services programs, and the use of its facilities. The executive officer shall delegate to the staff all necessary administrative and supervisory responsibilities to ensure an efficient operation of the institution.

21.2(4) *Financial records and reports.* The community college shall maintain accurate financial records and make reports in the form and pursuant to the timeline prescribed by the department and other state agencies.

21.2(5) *Enrollment.* A community college shall meet minimum enrollment requirements if it offers instruction as authorized in Iowa Code chapter 260C, and if, to the satisfaction of the state board of education, it is able to provide classes of reasonable economic size as needed by students, meets the needs of the students, and shows by its past and present enrollment and placement record that it meets individual and employment needs.

21.2(6) *Catalog.* The catalog shall be the official publication of the community college. It shall include accurate information on institutional policies, admissions requirements, procedures and fees, refund policies, residency requirements, program enrollment and degree requirements, due process procedures, affirmative action, and other information as recommended by the department. Students' rights and responsibilities may be included in the catalog or in a separate document.

21.2(7) *Admissions and program/course enrollment requirements.* The community college shall maintain an open-door admission policy for students of postsecondary age. This admission policy shall recognize that students should demonstrate a reasonable prospect for success in the program in which they are admitted. Applicants who cannot demonstrate a reasonable prospect for success in the program for which they apply should be assisted to enroll in courses where deficiencies may be remediated or into programs appropriate to the individual's preparation and objectives. The community college may set reasonable requirements for student enrollment in specified programs and courses. Admissions and program enrollment requirements established by each community college shall be published in the community college catalog.

21.2(8) *Academic year.* The academic year of the community college shall consist of semester, trimester, or quarter terms, and shall be a period of time beginning with the first day of the fall term and

continuing through the day preceding the start of the next fall term as indicated in the official college calendar. A community college may offer instruction in units of length (i.e., days and weeks) consistent with the identified scope and depth of the instructional content.

21.2(9) *Award requirements.* The director shall approve all new credit certificate, diploma, and degree award programs in accordance with Iowa Code section 260C.14. Awards from a community college shall be certified by the issuance of appropriate recognition, pursuant to award approval requirement guidelines issued by the department, indicating the type of program the student has completed. The minimum number and maximum number of credit hours required for each award type contained within this subrule may be waived pursuant to paragraph 21.2(13)*"i."*

a. Associate of arts (AA). The degree is awarded upon completion of a college parallel (transfer) course of study that provides a strong general education component to satisfy the lower division general education liberal arts and sciences requirements for a baccalaureate degree. An associate of arts degree shall consist of a minimum of 60 semester (90 quarter) credit hours and a maximum of 64 semester (96 quarter) credit hours.

b. Associate of science (AS). The degree is awarded upon completion of a course of study that requires a strong background in mathematics or science. The degree is intended to prepare students to transfer and initiate upper-division work in baccalaureate programs or prepare them for employment. An associate of science degree may also be awarded upon completion of a state-approved associate of science-career option (AS-CO) program of study that includes core technical coursework needed to complete a concentration in a specific field of study. The AS-CO program shall prepare students for entry-level careers and to complete requirements for transfer to a baccalaureate degree. An associate of science degree awarded upon completion of an arts and sciences course of study shall consist of a minimum of 60 semester (90 quarter) credit hours and a maximum of 64 semester (96 quarter) credit hours. An associate of science degree awarded upon completion of an AS-CO course of study shall consist of a minimum of 60 semester (90 quarter) credit hours and a maximum number of credit hours stated in program guidelines issued by the department. An associate of science degree awarded upon completion of an AS-CO course of study shall not consist of more than 70 semester (117 quarter) credit hours without an approved waiver pursuant to paragraph 21.2(13)*"i."*

c. Associate of general studies (AGS). The degree is awarded upon completion of a course of study that is primarily designed for the acquisition of a broad educational background rather than the pursuit of a specific college major or professional/technical program. It is intended as a flexible course of study and may include specific curriculum in lower division transfer, occupational education, or professional-technical education. An associate of general studies degree shall consist of a minimum of 60 semester (90 quarter) credit hours and a maximum of 64 semester (96 quarter) credit hours.

d. Associate of applied science (AAS). The degree is awarded upon completion of a state-approved program of study that is intended to prepare students for entry-level career and technical occupations. An associate of applied science degree shall consist of a minimum of 60 semester (90 quarter) credit hours and a maximum of 86 semester (129 quarter) credit hours. The general education component of the associate of applied science degree program shall consist of a minimum of 12 semester (18 quarter) credit hours of general education and shall include at least one course from each of the following areas: communications, social science or humanities, and mathematics or science. The technical specialty component of the associate of applied science degree shall constitute a minimum of 50 percent of the course credits.

e. Associate of applied arts (AAA). The degree is awarded upon completion of a state-approved program of study that is primarily intended for career training in providing students with professional skills for employment in a specific field of work such as arts, humanities, or graphic design. An associate of applied arts degree shall consist of a minimum of 60 semester (90 quarter) credit hours and a maximum of 86 semester (129 quarter) credit hours. The general education component of the associate of applied arts degree program shall consist of a minimum of 12 semester (18 quarter) credit hours of general education and shall include at least one course from each of the following: communications, social science or humanities, and mathematics or science. The technical specialty component of the associate of applied arts degree shall constitute a minimum of 50 percent of the course credits.

f. Diploma. The diploma is awarded upon completion of a state-approved program of study that is a coherent sequence of courses consisting of a minimum of 15 semester (22.5 quarter) credit hours and a maximum of 48 semester (72 quarter) credit hours including at least 3 semester (4.5 quarter) credit hours of general education. The general education component shall be from any of the following areas: communications, social science or humanities, and mathematics or science. A diploma may be a component of and apply toward subsequent completion of an associate of applied science or associate of applied arts degree.

g. Certificate. The certificate is awarded upon completion of a state-approved program of study that is designed for entry-level employment and shall consist of a maximum of 48 semester (72 quarter) credit hours. A certificate may be a component of and apply toward subsequent completion of a diploma or associate of applied science or associate of applied arts degree and may be developed in rapid response to the needs of business and industry. A certificate may consist of only career and technical courses and no general education course requirements.

21.2(10) *Academic records.* The community college shall maintain in perpetuity for each student the complete academic record including every course attempted and grade received. An official transcript must be created at the time of course enrollment. The credit hour(s) and grade must be recorded on the student's official transcripts upon completion of a community college course. These records shall be kept in disaster-resistant storage, unless other equivalent safeguards are used, such as maintaining duplicate files (electronic or otherwise) in separate facilities. The method of storage shall be consistent with current technology to ensure the ability to retrieve records. The community college shall implement a security plan that ensures the confidentiality of student records.

21.2(11) *Resident policy.* There shall be adopted for all community colleges a uniform policy for the determination of permanent residence for tuition purposes.

21.2(12) *Credit hours.* Credit hours shall be determined consistent with the following procedures.

a. Specifically stated criteria are minimal requirements only, which institutions may exceed at their discretion.

b. Conventional instruction is subdivided into four instructional methods as herein defined.

(1) Classroom work — lecture and formalized classroom instruction under the supervision of an instructor.

(2) Laboratory work — experimentation and practice by students under the supervision of an instructor.

(3) Clinical practice — applied learning experience in a health agency or office under the supervision of an instructor.

(4) Work experience — employment-related experience planned and coordinated by an institutional representative and the employer, with control and supervision of the student on the job being the responsibility of the employer.

c. No registration or orientation hours may be included when determining credit hours.

d. Institutions shall take into account the soundness of the learning environment being created by the scheduling sequence and length of classroom, laboratory, clinical, and work experience sessions. However, the final decision on these matters is left to the institutional administration so long as minimal standards are met.

e. Only minutes for students officially registered for courses or programs, including audit registration, may be included when determining credit hours.

f. Each community college must establish a policy that defines its methods of equating alternative instruction to credit hours and the process for evaluating the effectiveness of the alternative instruction to meet or exceed the expected student outcomes as if the course were taught utilizing conventional methods in paragraph 21.2(12)*"b."* Colleges will be held accountable for evaluating and maintaining high-quality programs, and their evaluations may be subject to department review. Students shall be expected to meet all approved course requirements and shall be expected to demonstrate the acquisition of knowledge and competencies/outcomes at the same level as those obtained in traditional classroom settings, in the time frames set by the institution. Alternative courses or programs of study must be approved by the college's review processes including faculty review and input. Courses shall be listed

in the college catalog. Instructional formats for which alternative methods of determining credit hours are applicable include the following:

(1) Accelerated courses (study, programs). Courses or programs of study that allow students to complete courses or programs at a faster pace than if offered by conventional methods. Courses and programs shall be tailored to involve more student participation and self-directed study. Instructors may teach in traditional classroom settings or by alternative methods specified in this subrule.

(2) Distance education. Courses or programs of study taught over the Internet, Iowa Communications Network (ICN), or other electronic means that allow students to receive instruction in the classroom or other sites, over personal computers, television, or other electronic means. Courses may or may not be interactive with direct communication between the teacher and students. Credit hours shall be awarded in accordance with the credit hours that would have been assigned if the course or program were taught by conventional methods.

1. Correspondence courses. Courses offered outside the classroom setting in which the instruction is delivered indirectly to the student. Instruction is provided through another medium, such as written material, computer, television, or electronic means. Course materials are sent to a student who follows a detailed syllabus to complete assignments. Students correspond with and transmit assignments to the instructor by telephone, computer, mail, or electronic means. A third party may administer tests.

2. Television courses. Courses or programs delivered primarily via broadcast television such as Iowa Public Television, digital video disc, or other media allowing students to receive instruction in a classroom or equipped remote location.

3. Video conference courses. Courses or programs delivered via a closed synchronous audio-video conferencing system such as the Iowa Communications Network or similar system which allows students to receive instruction in a classroom or any equipped remote location via an audio-video feed to a television, computer, or other electronic device.

4. Internet courses. Courses or programs delivered via the Internet. Courses may be taken using computers in a classroom setting or using personal computers or other electronic devices from the student's home or other location using an online content management system or mixed-media methods. Students may be linked at times directly with the instructor or with other students electronically. Interaction may be direct (synchronous) or indirect (asynchronous) allowing students to participate during their own time frames.

5. In-class hybrid courses. Courses or programs that combine traditional classroom and computer-based instruction. In-class sessions are offered with online instructional activities to promote independent learning and reduce seat-time.

(3) Self-paced instruction. Courses or programs that permit a student to enter at variable times or progress at the student's own rate of speed. Start and end dates may or may not correspond to the official college calendar. Contact or credit hours for self-paced programs or courses shall be computed by assigning to each registration the total number of credit or contact hours the student would have received if the student enrolled in a conventional program or course with stipulated beginning and ending dates.

(4) Arranged study. Instruction offered to students at times other than stated or scheduled class times to accommodate specific scheduling or program needs of students. Credit hours shall be awarded in accordance with the credit hours that would have been assigned if the course or program were taught by conventional methods.

(5) Multiformat nontraditional instruction. Instruction utilizing a variety of nontraditional methods that may incorporate self-paced learning, text, video, computer instructional delivery, accelerated training, independent study, Internet delivery, or other methods that do not follow standard classroom work guidelines. Credit hours shall be awarded in accordance with the credit hours that would have been assigned if the course or program were taught by conventional methods.

g. Individualized learning experiences for which an equivalent course is not offered shall have the program length computed from records of attendance using such procedures as a time clock or sign-in records. Individualized learning experiences means independent study courses in which an equivalent course is not offered by the college or listed in the college catalog. Independent study permits in-depth or focused learning on special topics of particular interest to the student.

h. Each course must have a minimum length of one credit hour. A fractional unit of credit may be awarded provided the course exceeds the minimum length of one credit hour.

i. Each credit hour shall consist of a minimum number of contact hours as defined in paragraphs 21.2(12)*"h"* to *"m."* One contact hour equals 50 minutes.

j. Classroom work.

(1) The minimal requirement for one semester hour of credit shall be 800 minutes (16 contact hours) of scheduled instruction.

(2) The minimal requirement for one quarter hour of credit shall be 533 minutes (10.7 contact hours) of scheduled instruction.

k. Laboratory work.

(1) The minimal requirement for one semester hour of credit shall be 1,600 minutes (32 contact hours) of scheduled laboratory work.

(2) The minimal requirement for one quarter hour of credit shall be 1,066 minutes (21.3 contact hours) of scheduled laboratory work.

l. Clinical practice.

(1) The minimal requirement for one semester hour of credit shall be 2,400 minutes (48 contact hours) of scheduled clinical practice.

(2) The minimal requirement for one quarter hour of credit shall be 1,599 minutes (32 contact hours) of scheduled clinical practice.

m. Work experience.

(1) The minimal requirement for one semester hour of credit shall be 3,200 minutes (64 contact hours) of scheduled work experience.

(2) The minimal requirement for one quarter hour of credit shall be 2,132 minutes (42.6 contact hours) of scheduled work experience.

21.2(13) *Career and technical program length.*

a. Program length for the associate of applied science (AAS) degree in career and technical education and for the associate of applied arts (AAA) degree shall consist of an academic program not to exceed two academic years. All required course offerings are to be available within two academic years. All required offerings in AAS and AAA degree programs shall not exceed a maximum of 86 semester (129 quarter) credit hours unless the department of education has granted a waiver pursuant to paragraph 21.2(13)*"i."* Programs shall not exceed an average of 19 credit hours per regular term.

b. All credit-bearing courses required for program admittance or graduation, or both, must be included in the 86 semester (129 quarter) credit hour maximum, with the exception of developmental credit hours. Prerequisites that provide an option to students for either credit or noncredit shall be counted toward the program maximum of 86 semester (129 quarter) credit hours. Prerequisite options that are only offered for noncredit will not be counted toward the 86 semester (129 quarter) credit hour maximum.

c. Associate of applied science (AAS) and associate of applied arts (AAA) programs that receive accreditation from nationally recognized accrediting bodies may appeal maximum credit hour length requirements to the department for consideration of a waiver. All AAS and AAA degree programs over the 86 semester (129 quarter) credit hour maximum must have approved program-length waivers pursuant to paragraph 21.2(13)*"i."*

d. Program length for the state-approved associate of science degree shall consist of an academic program that includes core technical coursework needed to complete a concentration in a specific field of study. The associate of science-career option program may prepare students for entry-level careers or allow students to complete requirements for a transfer to a baccalaureate degree. The associate of science-career option program shall not exceed the credit hour limit stated in department guidelines. To facilitate the transfer of students enrolling in associate of science-career option programs and awarded the associate of science transfer degree, each program shall have articulation agreements with baccalaureate degree programs meeting the articulation agreement requirements stated in department guidelines. The associate of science-career option program shall under no circumstances exceed a maximum of 70 semester (117 quarter) credit hours unless the department has granted a waiver pursuant to paragraph 21.2(13)*"i."*

e. All credit certificate and diploma programs as defined in subrule 21.2(9) shall not exceed 48 semester (72 quarter) credit hours.

f. Each course offered in the area of career and technical education shall be taught in the shortest practical period of time at a standard consistent with the quality and quantity of work needed to prepare the student for successful employment in the occupation for which instruction is being offered.

g. A full-time student in career and technical education shall be defined as a student enrolling in 12 or more semester credit hours or the equivalent in career and technical education.

h. Curricula in full-time career and technical education programs shall ordinarily be offered on the basis of student workload of 20 to 30 contact hours per week.

i. Waiver process. A college may petition the department to suspend in whole or in part a program-length requirement contained in paragraphs 21.2(12)*"h"* to *"m"* as applied to a specific program on the basis of the particular circumstances of that program.

(1) Waivers shall be issued at the director's sole discretion. Waivers shall be narrowly tailored and granted for a period no longer than two academic years, after which reapplication is required. A waiver may be granted on a long-term basis not to exceed ten years if issuing the waiver for a shorter period is not practical.

(2) All petitions for waiver must be submitted in writing to the department. A petition shall include the following information: specific waiver request including scope and duration, the relevant facts that the petitioner believes would justify a waiver, a detailed statement of the impact on student achievement, any information known regarding the department's treatment of similar cases, and any additional information deemed relevant by the petitioner. The department shall acknowledge a petition upon receipt.

(3) The department shall ensure that, within 30 calendar days, notice of pendency of the petition and a concise summary of its contents have been provided to a committee consisting of the chief academic officers of each community college. In addition, the department may give notice to other persons.

(4) A committee consisting of the chief academic officers of a majority of community colleges shall review the waiver request and provide a recommendation to the department regarding whether approval should be granted. Within 90 calendar days of receiving the recommendation, the department shall review the petition and issue a ruling. Failure of the department to grant or deny a petition within the required time period shall be deemed a denial of that petition. If a waiver is issued, the department shall provide a description of the precise scope and operative period to all interested parties.

21.2(14) *Faculty organization.* The faculty shall be organized in such a way as to promote communication among administration, faculty and students and to encourage faculty participation in the development of the curriculum, instructional procedures, general policies, and such other matters as are appropriate.

21.2(15) *Faculty salary allocation plan.* Pursuant to the appropriation of funds from the state general fund to the department for the purpose of supplementing community college faculty salaries, the department follows the formula herein when distributing such funds to community colleges.

a. For purposes of this subrule, the following definitions apply.

(1) "Full-time faculty" means those nonadministrative instructors, counselors, and librarians who are classified as full-time employees as defined in the college's collective bargaining agreement or written policy.

(2) "Part-time faculty" means those nonadministrative instructors, counselors, and librarians who are employed less than full-time as defined in the college's collective bargaining agreement and who are covered by the college's collective bargaining agreement. For purposes of the definition of "eligible full-time equivalent instructor," each part-time faculty person shall be counted as a fraction that accurately reflects the person's percentage of employment by the college when compared to a full-time faculty person.

(3) "Temporary/seasonal faculty" means those nonadministrative instructors, counselors, and librarians who are employed, full-time or part-time, by the college for short periods of time for specific purposes.

(4) "Adjunct faculty" means those nonadministrative instructors, counselors, and librarians who are employed without a continuing contract, whose teaching load does not exceed one-half time for two full semesters or three full quarters per calendar year.

(5) "Eligible full-time equivalent instructor" means the total of full-time faculty and part-time faculty where each full-time faculty counts as one, and each part-time faculty counts as a fraction that accurately reflects the person's percentage of employment by the college when compared to a full-time faculty person.

b. The appropriation shall be distributed to the community colleges based on their proportional share of eligible full-time equivalent instructors.

c. Moneys distributed to each community college pursuant to this subrule shall be rolled into the funding allocation for all future years. The use of the funds shall remain as described herein for all future years. The appropriation will be distributed to the community colleges in equal monthly payments made on or about the fifteenth of each month.

d. Moneys appropriated and distributed to community colleges pursuant to this subrule shall be used to supplement and not supplant any approved faculty salary increases or negotiated agreements, excluding the distribution of the funds herein. Eligible expenditures for the moneys appropriated are for salary expenditures and the required college contribution to FICA and IPERS or an alternative retirement benefits system. These moneys shall then be considered as part of the instructor's salary in future years.

e. Moneys distributed to a community college pursuant to this subrule shall be allocated to all full-time faculty and shall include part-time faculty covered by a collective bargaining agreement. The moneys shall be allocated pursuant to any existing negotiated agreements according to Iowa Code chapter 20. If no language exists to specify the method of allocation, the moneys shall be allocated equally to all full-time faculty with part-time faculty who are covered by a collective bargaining agreement receiving a prorated share.

f. A community college receiving funds distributed pursuant to this subrule shall determine the amount to be paid to instructors in accordance with Iowa Code section 260C.18D, subsection 4, and the amount determined to be paid to an individual instructor shall be divided evenly and paid in each pay period of the fiscal year.

This rule is intended to implement Iowa Code section 260C.33.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.3(260C) Faculty. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.4(260C) Curriculum and evaluation.

21.4(1) *General education.* General education is intended to provide breadth of learning to the community college experience. General education imparts common knowledge, promotes intellectual inquiry, and stimulates the examination of different perspectives, thus enabling people to function effectively in a complex and changing world. General education tends to emphasize oral and written communication, critical analysis of information, knowledge and appreciation of diverse cultures, ways of knowing and human expression, knowledge of mathematical processes and natural sciences investigations, and ethics. General education courses are not intended to be developmental in nature. Each community college is responsible for clarifying, articulating, publicizing, and assessing its general education program.

21.4(2) *College parallel or transfer.*

a. This program shall offer courses that are the equivalent of the first two years of a baccalaureate program and may also include: such courses as may be necessary to develop skills that are prerequisite to other courses and objectives; and specialized courses required to provide career options within the college parallel or transfer program. College parallel or transfer programs are associate of arts and associate of science degree programs. General education courses in college parallel or transfer programs are required to be college transfer courses. A follow-up of students terminating shall be conducted to determine how well students have succeeded and which adjustments in the curriculum, if any, need to be made.

b. Courses of a developmental or remedial nature or prefreshman level shall not bear college transfer credit and shall be clearly identified in the college catalog. Developmental courses on the transcript shall be identifiable through the adoption of the community college common course numbering system.

21.4(3) *Career and technical education.* Instruction shall be offered in career and technical education programs in no less than five different occupational fields as defined by the department. College parallel or transfer courses may be offered as needed in career and technical education programs. Career and technical education programs, including associate of science-career option programs, must meet program approval requirements set by the state board of education. The director shall approve new career and technical education programs. Instruction shall be offered in career and technical education programs, ensuring that they are competency-based, contain all minimum competencies required by the department, articulate with local school districts' career and technical education programs, and comply with any applicable requirements in Iowa Code chapter 258. The occupational fields in which instruction is offered shall be determined by merged area and geographical area needs as identified by surveys in these areas. Occupational advisory committees may be used to assist in developing and maintaining instructional content, including leadership development.

21.4(4) *Adult and continuing education.* Adult education shall be offered and may include adult basic education, adult continuing and general education, college parallel or transfer, high school completion, supplementary and preparatory career education programs, and other programs and experiences as may be required to meet the needs of people in the merged area.

21.4(5) *Community services.* The community colleges shall provide a program of community services designed to meet the needs of persons residing in the merged area. The purpose of the community service program shall be to foster agricultural, business, cultural, industrial, recreational and social development in the area.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.5(260C) Library or learning resource center.

21.5(1) *Facilities.* Community college libraries or learning resource centers shall provide the facilities and resources needed to support the total educational program of the institution and shall show evidence that the facilities and the resources are being used effectively and efficiently. Adequate consideration shall be given to the seating, comfort, setting, and technology of the facility used to house the collection and learning resources.

21.5(2) *Staffing.* The library or learning resource center shall be adequately staffed with qualified professionals and skilled nonprofessional personnel.

21.5(3) *Collection.* The library and learning resource center materials collection of a community college shall be accessible and adequate in size and scope to serve effectively the number and variety of programs offered and the number of students enrolled, including distance and satellite sites. The library and learning resource center materials collection shall show evidence of having been selected by faculty as well as professional library or learning resource staff and shall be kept up-to-date through a planned program of acquisition and deletion. The library and learning resource center materials collection shall contain a range and number of print and nonprint materials and appropriate electronic information resources.

21.5(4) *Expenditures.* The budget of the library or learning resource center shall be appropriate for the programs and services offered by the institution. New programs and new curricula shall be reflected in library or learning resource center expenditures.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.6(260C) Student services. A program of student services shall be provided to meet the needs of students in the community college. The program of student services shall include, but not be limited to, the following functional areas:

1. Orientation to college and career opportunities and requirements.
2. Appraisal of individual potential.
3. Consultation with students about their plans, progress and problems.

4. Participation of students in activities that supplement classroom experiences.

5. Regulation to provide an optimal climate for social and academic development.

6. Services that facilitate community college attendance through a program of financial assistance, and facilitate transition to further education or employment.

7. Organization that provides for continuing articulation, evaluation and improvement of the student services program.

8. Campus safety and security as required by Iowa Code chapter 260C and the federal Clery Act, 20 U.S.C. Section 1092(f), 34 CFR Section 668.46.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.7(260C) Laboratories, equipment and supplies. Laboratories, equipment and supplies shall be comparable with those used in the occupations for which instruction is offered. Similarly, college parallel or transfer courses shall be supported in a manner comparable to those conditions which prevail in standard, regionally accredited colleges and universities in which students may wish to transfer college credits.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.8(260C) Physical plant. The site, buildings and equipment of the community college shall be well maintained and in good condition. At a minimum, a five-year ongoing, systematic maintenance and facilities plan approved by the local community college board shall be in evidence. The physical plant shall be adequate in size and properly equipped for the program offered. All remodeling of existing facilities shall comply with Iowa Code chapter 104A and the federal Americans With Disabilities Act, 42 U.S.C. Section 12101 et seq.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.9(260C) Nonreimbursable facilities. No facility intended primarily for events for which admission may be charged nor any facility specially designed for athletic or recreational activities, other than physical education, shall be constructed with state-appropriated funds.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.10(260C) Accreditation. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.11(260C) Community college accreditation process. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.12(260C) Standards for community colleges. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.13 to **21.19** Reserved.

The rules in this division are intended to implement Iowa Code chapter 260C and 2007 Iowa Acts, Senate File 601.

DIVISION II
COMMUNITY COLLEGE ENERGY APPROPRIATIONS

281—21.20 to **21.29** Reserved.

DIVISION III
INSTRUCTIONAL COURSE FOR DRINKING DRIVERS

281—21.30(321J) Purpose. The purpose of the instructional course for drinking drivers is designed to inform the offender about drinking and driving and encourage the offender to assess the offender's own drinking and driving behavior in order to select practical alternatives.

281—21.31(321J) Course.

21.31(1) A course provided in accordance with Division III of this chapter shall be offered on a regular basis at each community college or by a substance abuse treatment program licensed under Iowa Code chapter 125. However, a community college shall not be required to offer the course if a substance abuse treatment program licensed under Iowa Code chapter 125 offers the course within the merged area served by the community college.

21.31(2) A course provided in accordance with Division III of this chapter may be offered at a state correctional facility listed in Iowa Code section 904.102.

21.31(3) A course provided in accordance with Division III of this chapter may be offered by a provider in another state when the course and its provider are approved by the department of education pursuant to 2011 Iowa Acts, Senate File 470.

21.31(4) Enrollment in the course is not limited to persons ordered to enroll, attend, and successfully complete the course required under Iowa Code sections 321J.1 and 321J.17, subsection 2. However, any person under the age of 18 who is required to attend the courses for violation of Iowa Code section 321J.2 or 321J.17 must attend a course offered by a substance abuse treatment program licensed under Iowa Code chapter 125.

21.31(5) Any instructional course shall be approved by the department of education in consultation with the community colleges, substance abuse treatment programs licensed under Iowa Code chapter 125, the Iowa department of public health, and the Iowa department of corrections. Each course of instruction shall establish the following:

a. An understanding that alcohol-related problems could happen to anyone and that a person's drinking choices matter. The course illustrates common views of society that prevent people from taking drinking choices seriously. Research is presented to challenge common views with an understanding that alcohol problems are related to lifestyle choices.

b. An understanding that specific low-risk choices will help reduce the risk of experiencing alcohol-related problems at any point in life. The course presents research-based, low-risk guidelines.

c. Methods of providing support for making low-risk choices.

d. An accurate description of the progression of drinking to the development of alcoholism to help people weigh the risk involved with high-risk drinking and to see how high-risk choices may jeopardize their lives and the lives of others.

e. Opportunities to develop a specific plan of action to follow through with low-risk choices. A list of community resources is provided for ongoing support and treatment as needed.

[**ARC 9901B**, IAB 12/14/11, effective 1/18/12]

281—21.32(321J) Tuition fee established.

1. Each person enrolled in an instructional course for drinking drivers shall pay to the community college, a substance abuse treatment program licensed under Iowa Code chapter 125, or a state correctional facility a tuition fee of $85 for the approved 12-hour course, plus a reasonable book fee or $185 for the court-ordered approved 28-hour weekend course, plus a reasonable book fee. For the court-ordered approved 28-hour weekend course, the community college or the substance abuse treatment program licensed under Iowa Code chapter 125 shall set a reasonable fee for lodging, meals, and security.

2. A person shall not be denied enrollment in a course by reason of a person's indigency. For court-ordered placement, the court shall determine a person's indigency. In all other instances, the community college, substance abuse treatment program licensed under Iowa Code chapter 125, or state correctional facility shall determine indigence upon application.

281—21.33(321J) Administrative fee established.

21.33(1) *Students enrolled in Iowa.* Beginning January 1, 2003, each person enrolled in Iowa in an instructional course for drinking drivers under this chapter shall be charged an administrative fee of $10. This fee is in addition to tuition and shall be collected by the provider of the instructional course in conjunction with the tuition fee established under 281—21.32(321J). The administrative fee shall be

forwarded to the department of education on a quarterly basis as prescribed by the department. If a student has been declared by the court as indigent, no administrative fee will be charged to that student.

21.33(2) *Students enrolled in another state.* Beginning January 1, 2004, each person enrolled outside the state of Iowa in an instructional course for drinking drivers under this chapter shall be charged an administrative fee of $25. This fee is in addition to tuition and shall be paid directly to the department of education by the student. Upon payment of the fee, the department of education shall review the educational component of the course taken by the student and shall inform the department of transportation whether the educational component is approved by the department of education.

281—21.34 Reserved.

The rules in this division are intended to implement Iowa Code section 321J.22 as amended by 2008 Iowa Acts, House File 2651, section 16.

DIVISION IV
JOBS NOW CAPITALS ACCOUNT

281—21.35 to **21.44** Reserved.

DIVISION V
STATE COMMUNITY COLLEGE FUNDING PLAN

281—21.45(260C) Purpose. A distribution plan for general state financial aid to Iowa's community colleges is established for the fiscal year commencing July 1, 1999, and succeeding fiscal years. Funds appropriated by the general assembly to the department of education for general financial aid to community colleges shall be allocated to each community college in the manner defined in this chapter.

21.45(1) Distribution formula. Moneys appropriated by the general assembly from the general fund to the department for community college purposes for general state financial aid for a budget year shall be allocated to each community college by the department according to the provisions of Iowa Code section 260C.18C.

21.45(2) Each community college shall provide student and financial information in the manner and form as determined by the department and before the deadline announced by the department. If the community college fails to provide the student or financial information as required, the department shall estimate the full-time equivalent enrollment (FTEE) of that college that will be used in the state general aid distribution formula.

21.45(3) Each community college shall be required to hire an auditing firm to complete and submit the schedule of credit-hour and contact-hour enrollment and a letter certifying that specified department of education procedures were followed. These schedules will be used in calculating the college's FTEE utilized in the community college state general aid distribution formula.

This rule is intended to implement Iowa Code section 260C.18C.
[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

DIVISION VI
INTERCOLLEGIATE ATHLETIC COMPETITION

281—21.46 to **21.56** Reserved.

DIVISION VII
QUALITY INSTRUCTIONAL CENTER INITIATIVE

281—21.57(260C) Purpose. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.58(260C) Definitions. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.59(260C) Eligibility requirements. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.60(260C) Timelines. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.61(260C) Evaluation and selection criteria. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.62(260C) Funding. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.63(260C) Annual report. Rescinded IAB 4/7/10, effective 5/12/10.

DIVISION VIII
PROGRAM AND ADMINISTRATIVE SHARING INITIATIVE
Rules 281—21.64(280A) to 21.71(280A), effective 12/20/91 were rescinded IAB 2/5/92, effective 1/7/92; these rules were readopted IAB 4/1/92, effective 5/6/92.

281—21.64(260C) Purpose. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.65(260C) Definitions. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.66(260C) Eligibility requirements. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.67(260C) Timelines. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.68(260C) Evaluation and selection criteria. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.69(260C) Funding. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.70(260C) Annual report. Rescinded IAB 4/7/10, effective 5/12/10.

281—21.71(260C) Combining merged areas—election. Rescinded IAB 4/7/10, effective 5/12/10.

DIVISION IX
APPRENTICESHIP PROGRAM

281—21.72(260C) Purpose. The purpose of the apprenticeship program is to provide individuals, at least 16 years of age, except where a higher minimum age standard is otherwise fixed by law, employment to learn a skilled trade or an occupation; and to authorize each community college to establish or contract for the establishment of apprenticeship programs for apprenticeable occupations.

281—21.73(260C) Definitions. For the purpose of Division IX, the following definitions shall apply:

"Apprentice" shall mean a worker at least 16 years of age, except where a higher minimum age standard is otherwise fixed by law, who is employed to learn a skilled trade or occupation under the standards of apprenticeship.

"Apprenticeable occupation" is a skilled trade which possesses all of the following characteristics:

1. It is customarily learned in a practical way through a structured, systematic program of on-the-job, supervised training.
2. It is clearly identified and commonly recognized throughout an industry.
3. It involves manual, mechanical or technical skills and knowledge which require a minimum of 2,000 hours of on-the-job work experience.
4. It requires related instruction to supplement on-the-job training.

"Apprenticeship agreement" shall mean a written agreement between an apprentice and the apprentice's employer, or an apprenticeship committee acting as the agent for the employer(s). The agreement contains the terms and conditions of the employment and training of the apprentice.

"Apprenticeship committee" shall mean those persons designated by the sponsor to act for it in the administration of the program. A committee may be "joint," i.e., composed of an equal number of representatives of the employer(s) and of the employees represented by a bona fide collective bargaining agent(s), and is established to conduct, operate, or administer an apprenticeship program and enter into

apprenticeship agreements with apprentices. A committee may be "unilateral" or "nonjoint" and shall mean a program sponsor in which a bona fide collective bargaining agent is not a participant.

"Apprenticeship instructor" shall mean an instructor who delivers related and technical instruction in apprenticeship programs and who must meet the department's requirements for career and technical instructors or be recognized as a subject matter expert. It is recommended that all apprenticeship instructors have training in teaching techniques and adult learning styles.

"Apprenticeship program" shall mean a plan containing all terms and conditions for the qualification, recruitment, selection, employment and training of apprentices, including such matters as required under 29 CFR Parts 29 and 30, including the requirement for a written apprenticeship agreement.

"Cancellation" shall mean the termination of the registration or approval status of a program at the request of the sponsor or termination of an apprenticeship agreement at the request of the apprentice.

"Certification" or *"certificate"* shall mean documentary evidence that at least one of the following has been met:

1. The Office of Apprenticeship has approved a set of National Guidelines for Apprenticeship Standards developed by a national committee or organization, joint or unilateral, or policy or guideline used by local affiliates, as conforming to the standards of apprenticeship set forth in 29 CFR Section 29.5;
2. A registration agency has established that an individual is eligible for probationary employment as an apprentice under a registered apprenticeship program.
3. A registration agency has registered an apprenticeship program as evidenced by a certificate of registration or other written indicia;
4. A registration agency has determined that an apprenticeship has successfully met the requirements to receive an interim credential; or
5. A registration agency has determined that an individual has successfully completed an apprenticeship.

"Competency" shall mean the attainment of manual or technical skill and knowledge as specified by an occupational standard.

"Employer" shall mean any person or organization employing an apprentice whether or not such person or organization is a party to an apprenticeship agreement with the apprentice.

"Journeyworker" shall mean a worker who has attained a level of skill and competency recognized within an industry as having mastered the skills and competencies required for the occupation.

"Office of Apprenticeship" shall mean the office designated by the Employment and Training Administration to administer the National Apprenticeship System or its successor organization.

"Registration agency" shall mean the Office of Apprenticeship.

"Registration of an apprenticeship agreement" shall mean the acceptance and recording of an apprenticeship agreement by the Office of Apprenticeship as evidence of the apprentice's participation in a particular registered apprenticeship program.

"Related instruction" or *"related technical instruction"* shall mean an organized and systematic form of instruction designed to provide the apprentice with the core knowledge of the theoretical and technical subjects related to the apprentice's occupation. Such instruction may be given in a classroom through occupational or industrial courses, by correspondence courses of equivalent value, by electronic media, or by other forms of self-study approved by the registration agency.

"Sponsor" shall mean any person, association, committee or organization operating an apprenticeship program and in whose name the program is (or is to be) registered or approved.

"Supplemental instruction" shall mean instruction in non-core-related requirements; for example, job site management, leadership, communications, first aid/CPR, field trips, and new technologies.

[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

281—21.74(260C) Apprenticeship programs. For an apprenticeship program to be offered by a community college or a local educational agency, the program must be approved by the U.S. Department

of Labor, Office of Apprenticeship, and meet all requirements outlined in the National Apprenticeship Act, 29 U.S.C. Section 50, 29 CFR Parts 29 and 30.
[**ARC 8646B**, IAB 4/7/10, effective 5/12/10]

The rules in this division are intended to implement Iowa Code section 260C.44 and the National Apprenticeship Act, 29 U.S.C. Section 50, and 29 CFR Parts 29 and 30.

DIVISION X
MISCELLANEOUS PROVISIONS

281—21.75(260C,82GA,SF358) Used motor vehicle dealer education program. An applicant for a license from the department of transportation as a used motor vehicle dealer shall complete a minimum of eight hours of prelicensing education program courses pursuant to 2007 Iowa Acts, Senate File 358, prior to submitting the application. The education program courses are provided by community colleges or by the Iowa Independent Automobile Dealers Association in conjunction with a community college. The fee for both the prelicensing education program courses and continuing education courses shall not exceed $50 per contact hour of instruction, which shall include course materials and administrative costs.

This rule is intended to implement Iowa Code chapter 260C and 2007 Iowa Acts, Senate File 358.

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◊ Two or more ARCs

CHAPTER 22
SENIOR YEAR PLUS PROGRAM

DIVISION I
GENERAL PROVISIONS

281—22.1(261E) Scope. The senior year plus program provides Iowa high school students access to advanced placement courses and a variety of means by which to concurrently access secondary and postsecondary credit.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.2(261E) Student eligibility. A student shall meet all of the following criteria as a condition of participation in the programs described in Divisions IV and V of this chapter. To the extent that postsecondary credit is available to a student under the programs described in Divisions III and VI, the student shall meet all of the following criteria. A student who desires to participate in the postsecondary enrollment options program under Division V of these rules also shall meet the eligibility requirements set forth in rule 281—22.16(261E).

22.2(1) *Requirements established by postsecondary institution.*

a. The student shall meet the enrollment requirements established by the eligible postsecondary institution providing the course credit.

b. The student shall meet or exceed the minimum performance measures on any academic assessments that may be required by the eligible postsecondary institution.

c. The student shall have taken the appropriate course prerequisites, if any, prior to enrollment in the eligible postsecondary course, as determined by the eligible postsecondary institution delivering the course.

22.2(2) *Requirements established by school district.*

a. The student shall have attained the approval of the school board or its designee and the eligible postsecondary institution to register for the postsecondary course.

b. The student shall have demonstrated proficiency in all of the content areas of reading, mathematics, and science as evidenced by achievement scores on the most recent administration of the Iowa tests of basic skills (ITBS) or the Iowa tests of educational development (ITED) for which scores are available for the student. If the student was absent for the most recent administration of either the ITBS or ITED, and such absence was not excused by the student's school of enrollment, the student is deemed not to be proficient in any of the content areas. The school district may determine whether such student is eligible for qualification under an equivalent qualifying performance measure.

(1) If a student is not proficient in one or more of the content areas of reading, mathematics, and science, the school board may establish alternative but equivalent qualifying performance measures. The school board is not required to establish equivalent performance measures, but if it does so, such measures may include but are not limited to additional administrations of the state assessment, portfolios of student work, student performance rubric, or end-of-course assessments. A school board that establishes equivalent performance measures shall also establish criteria by which its district personnel shall determine comparable student proficiency.

(2) A student who attends an accredited nonpublic school and desires to access advanced placement coursework or postsecondary enrollment options shall meet the same eligibility criteria as students in the school district in which the accredited nonpublic school is located.

(3) A student under competent private instruction shall meet the same proficiency standard as students in the school district in which the student is dually enrolled and shall have the approval of the school board in that school district to register for the postsecondary course. In lieu of ITBS or ITED scores as the state assessment, a school district shall allow a student under competent private instruction to demonstrate proficiency in reading, mathematics, and science by any one of the following means:

1. By meeting the same alternative but equivalent qualifying performance measures established by the local school board for all students in the school district in which the student is dually enrolled;

2. By submitting the written recommendation of the licensed practitioner providing supervision to the student in accordance with Iowa Code section 299A.2;

3. As evidenced by achievement scores on the annual achievement evaluation required under Iowa Code section 299A.4;

4. As evidenced by a composite score of at least 21 on the college readiness assessment administered by ACT, Inc.;

5. As evidenced by a sum of at least 141 in critical reading, mathematics, and writing skills on the preliminary scholastic aptitude test (PSAT) administered by the College Board; or

6. As evidenced by a sum of at least 990 in critical reading and mathematics on the college readiness assessment (SAT) administered by the College Board.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09; **ARC 9902B**, IAB 12/14/11, effective 1/18/12]

281—22.3(261E) Teacher eligibility, responsibilities. A teacher employed to provide instruction under this chapter shall meet the following criteria:

22.3(1) *Eligibility.* The teacher shall meet the standards and requirements set forth which other full-time instructors teaching within the academic department are required to meet and which are approved by the appropriate postsecondary administration. An individual under suspension or revocation of an educational license or statement of professional recognition issued by the board of educational examiners shall not be allowed to provide instruction for any program authorized by this chapter. If the instruction for any program authorized by this chapter is provided at a school district facility or a neutral site, the teacher or instructor shall have successfully passed a background investigation conducted in accordance with Iowa Code section 272.2(17) prior to providing such instruction. The background investigation also applies to a teacher or instructor who is employed by an eligible postsecondary institution if the teacher or instructor provides instruction under this chapter at a school district facility or a neutral site. For purposes of this rule, "neutral site" means a facility that is not owned or operated by an institution.

22.3(2) *Responsibilities.* A teacher employed to provide instruction under this chapter shall do all of the following:

a. Collaborate, as appropriate, with other secondary or postsecondary faculty of the institution that employs the teacher regarding the subject area;

b. As assisted by the school district, provide ongoing communication about course expectations, teaching strategies, performance measures, resource materials used in the course, and academic progress to the student and, in the case of students of minor age, to the parent or guardian of the student;

c. Provide curriculum and instruction that are accepted as college-level work as determined by the institution;

d. Use valid and reliable student assessment measures, to the extent available.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.4(261E) Institutional eligibility, responsibilities.

22.4(1) *Requirements of both school district and eligible postsecondary institution.*

a. The institutions shall ensure that students, or in the case of minor students, parents or guardians, receive appropriate course orientation and information, including but not limited to a summary of applicable policies and procedures, the establishment of a permanent transcript, policies on dropping courses, a student handbook, information describing student responsibilities, and institutional procedures for academic credit transfer.

b. The institutions shall ensure that students have access to student support services, including but not limited to tutoring, counseling, advising, library, writing and math labs, and computer labs, and student activities, excluding postsecondary intercollegiate athletics. If a fee is charged to other students of the eligible postsecondary institution for any of the above services, that fee may also be charged to participating secondary students on the same basis as it is charged to postsecondary students.

c. The institutions shall ensure that students are properly enrolled in courses that will carry college credit.

d. The institutions shall ensure that teachers and students receive appropriate orientation and information about the institution's expectations.

e. The institutions shall ensure that the courses provided achieve the same learning outcomes as similar courses offered in the subject area and are accepted as college-level work.

f. The institutions shall review the course on a regular basis for continuous improvement, shall follow up with students in order to use information gained from the students to improve course delivery and content, and shall share data on course progress and outcomes with the collaborative partners involved with the delivery of the programming and with the department, as needed.

g. The institutions shall not require a minimum or a maximum number of postsecondary credits to be earned by a high school student under this chapter. However, no student shall be enrolled as a full-time student in any one postsecondary institution.

h. The institutions shall not place restrictions on participation in senior year plus programming beyond that which is specified in statute or administrative rule.

i. The institutions shall provide the teacher or instructor appropriate orientation and training in secondary and postsecondary professional development related to curriculum, pedagogy, assessment, policy implementation, technology, and discipline issues.

j. The institutions shall provide the teacher or instructor adequate notification of an assignment to teach a course under this chapter, as well as adequate preparation time to ensure that the course is taught at the college level. The specifics of this paragraph shall be locally determined.

22.4(2) *Requirements of school district only.*

a. The school district shall certify annually to the department, as an assurance in the district's basic education data survey, that the course provided to a high school student for postsecondary credit in accordance with this chapter supplements, and does not supplant, a course provided by the school district in which the student is enrolled. For purposes of these rules, to comply with the "supplement, not supplant" requirement, the content of a course provided to a high school student for postsecondary credit shall not consist of substantially the same concepts and skills as the content of a course provided by the school district.

b. The school district shall ensure that the background investigation requirement of subrule 22.3(1) is satisfied. The school district shall pay for the background investigation but may charge the teacher or instructor a fee not to exceed the actual cost charged the school district for the background investigation conducted. If the teacher or instructor is employed by an eligible postsecondary institution, the school district shall pay for the background investigation but may request reimbursement of the actual cost to the eligible postsecondary institution.

22.4(3) *Requirements of eligible postsecondary institution only.*

a. All eligible postsecondary institutions providing programming under this chapter shall include the unique student identifier assigned to students while in the kindergarten through grade 12 system as a part of the institution's student data management system.

(1) Eligible postsecondary institutions providing programming under this chapter shall cooperate with the department on data requests related to the programming.

(2) All eligible postsecondary institutions providing programming under this chapter shall collect data and report to the department on the proportion of females and minorities enrolled in science-, technology-, engineering-, and mathematics-oriented educational opportunities provided in accordance with this chapter.

b. The eligible postsecondary institution shall provide the teacher or instructor with ongoing communication and access to instructional resources and support, and shall encourage the teacher or instructor to participate in the postsecondary institution's academic departmental activities.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.5(261E) Reserved.

DIVISION II
DEFINITIONS

281—22.6(261E) Definitions. For the purposes of this chapter, the indicated terms are defined as follows:

"Concurrent enrollment" means any course offered to students in grades 9 through 12 during the regular school year approved by the board of directors of a school district through a contractual agreement between a community college and the school district that meets the provisions of Iowa Code section 257.11(3).

"Department" means the department of education.

"Director" means the director of the department of education.

"Dually enrolled" means the status of a student who receives competent private instruction under Iowa Code chapter 299A and whose parent, guardian, or legal custodian has registered the student pursuant to Iowa Code section 299A.8 in a school district for any of the purposes listed therein, including, for purposes of these rules, participation in any part of the senior year plus program on the same basis as public school students.

"Eligible postsecondary institution" means an institution of higher learning under the control of the state board of regents, a community college established under Iowa Code chapter 260C, or an accredited private institution as defined in Iowa Code section 261.9.

"Full time" means enrollment in any one academic year, exclusive of any summer term, of 24 or more postsecondary credit hours.

"ICN" means Iowa communications network, the statewide system of educational telecommunications including narrowcast and broadcast systems under the public broadcasting division of the department of education and live interactive systems which allow, at a minimum, one-way video and two-way audio communication.

"Institution" means a school district or eligible postsecondary institution delivering the instruction in a given program as authorized by this chapter.

"School board" means the board of directors of a school district or a collaboration of boards of directors of school districts.

"State board" means the state board of education.

"Student" means any individual in grades 9 through 12 enrolled or dually enrolled in a school district who meets the criteria in rule 281—22.2(261E). For purposes of Division III (Advanced Placement Program) and Division V (Postsecondary Enrollment Options Program) only, "student" also includes a student enrolled in an accredited nonpublic school or the Iowa School for the Deaf or the Iowa Braille and Sight Saving School.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

DIVISION III
ADVANCED PLACEMENT PROGRAM

281—22.7(261E) School district obligations. All school districts shall comply with the following obligations but may do so through direct instruction, collaboration with another school district, or use of the Iowa online advanced placement academy. An international baccalaureate program is not an advanced placement program.

22.7(1) A school district shall provide descriptions of the advanced placement courses available to students using a course registration handbook.

22.7(2) A school district shall ensure that advanced placement course teachers are appropriately licensed by the board of educational examiners in accordance with Iowa Code chapter 272 and meet the minimum certification requirements of the national organization that administers the advanced placement program.

22.7(3) A school district shall establish prerequisite coursework for each advanced placement course offered and shall describe the prerequisites in the course registration handbook, which shall be provided

to every junior high school or middle school student prior to the development of a core curriculum plan pursuant to Iowa Code section 279.61.

22.7(4) A school district shall make advanced placement coursework available to a dually enrolled student under competent private instruction if the student meets the same criteria as a regularly enrolled student of the district.

22.7(5) A school district shall make advanced placement coursework available to a student enrolled in an accredited nonpublic school located in the district if the student meets the criteria in subparagraph 22.2(2)*"b"*(3).

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.8(261E) Obligations regarding registration for advanced placement examinations. The board of directors of a school district and the authorities in charge of an accredited nonpublic school shall ensure that any student enrolled who is interested in taking an advanced placement examination is properly registered for the examination. An accredited nonpublic school shall provide a list of students registered for advanced placement examinations to the school district in which the accredited nonpublic school is located. The school district and the accredited nonpublic school shall ensure that any student enrolled in the school district or school, as applicable, who is interested in taking an advanced placement examination and qualifies for a reduced fee for the examination is properly registered for the fee reduction.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.9(261E) and **22.10(261E)** Reserved.

DIVISION IV
CONCURRENT ENROLLMENT PROGRAM

281—22.11(261E) Applicability. The concurrent enrollment program, also known as district-to-community college sharing, promotes rigorous academic or career and technical pursuits by providing opportunities to high school students to enroll part-time in eligible nonsectarian courses at or through community colleges established under Iowa Code chapter 260C.

22.11(1) The program shall be made available to all eligible resident students in grades 9 through 12.

a. Notice of the availability of the program shall be included in a school district's student registration handbook, and the handbook shall identify which courses, if successfully completed, generate college credit under the program.

b. A student and the student's parent or guardian shall also be made aware of this program as a part of the development of the student's core curriculum plan in accordance with Iowa Code section 279.61.

22.11(2) A student enrolled in an accredited nonpublic school may access the program through the school district in which the accredited nonpublic school is located. A student receiving competent private instruction may access the program through the school district in which the student is dually enrolled and may enroll in the same number of concurrent enrollment courses as a regularly enrolled student of the district.

22.11(3) A student may make application to a community college and the school district to allow the student to enroll for college credit in a nonsectarian course offered by the community college. A comparable course, as defined in rules adopted by the board of directors of the school district, must not be offered by the school district or accredited nonpublic school which the student attends. The school board shall annually approve courses to be made available for high school credit using locally developed criteria that establish which courses will provide the student with academic rigor and will prepare the student adequately for transition to a postsecondary institution. A school district may not use concurrent enrollment courses to meet the accreditation requirements in Division V of 281—Chapter 12 other than for career-technical courses.

22.11(4) If an eligible postsecondary institution accepts a student for enrollment under this division, the school district, in collaboration with the community college, shall send written notice to the student,

the student's parent or guardian in the case of a minor child, and the student's school district. The notice shall list the course, the clock hours the student will be attending the course, and the number of hours of college credit that the student will receive from the community college upon successful completion of the course.

22.11(5) A school district shall grant high school credit to a student enrolled in a course under this division if the student successfully completes the course as determined by the community college and the course was previously approved by the school board pursuant to 22.11(3). The board of directors of the school district shall determine the number of high school credits that shall be granted to a student who successfully completes a course. Students shall not "audit" a concurrent enrollment course; the student must take the course for credit.

22.11(6) School districts that participate in district-to-community college sharing agreements or concurrent enrollment programs that meet the requirements of Iowa Code section 257.11(3) are eligible to receive supplementary weighted funding under that provision. Regardless of whether a district receives supplementary weighted funding, the district shall not charge tuition of any of its students who participate in a concurrent enrollment course.

22.11(7) Community colleges shall comply with the data collection requirements of Iowa Code section 260C.14(22). The data elements shall include but not be limited to the following:

a. An unduplicated enrollment count of eligible students participating in the program.

b. The actual costs and revenues generated for concurrent enrollment. An aligned unique student identifier system shall be established by the department for students in kindergarten through grade 12 and community college.

c. Degree, certifications, and other qualifications to meet the minimum hiring standards.

d. Salary information including regular contracted salary and total salary.

e. Credit hours and laboratory contact hours and other data on instructional time.

f. Other information comparable to the data regarding teachers collected in the basic education data survey.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.12(261E) Transportation. Reserved.

281—22.13(261E) Reserved.

DIVISION V
POSTSECONDARY ENROLLMENT OPTIONS PROGRAM

281—22.14(261E) Availability. The senior year plus programming provided by a school district pursuant to this division may be but is not required to be available to students on a year-round basis.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.15(261E) Notification. The availability and requirements of this program shall be included in each school district's student registration handbook. Information about the program shall be provided to the student and the student's parent or guardian prior to the development of the student's core curriculum plan under Iowa Code section 279.61. The school district shall establish a process by which students may indicate interest in and apply for enrollment in the program.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.16(261E) Student eligibility. Persons who have graduated from high school are not eligible for this program. Eligible students shall be residents of Iowa. "Eligible student" includes a student classified by the board of directors of a school district, by the state board of regents for students of the Iowa School for the Deaf and the Iowa Braille and Sight Saving School, or by the authorities in charge of an accredited nonpublic school as a ninth or tenth grade student who is identified according to the school district's gifted and talented criteria and procedures, pursuant to Iowa Code section 257.43, as a gifted and talented child, or an eleventh or twelfth grade student, during the period the student is participating

in the postsecondary enrollment options program. To be eligible to participate in a program under this division, a student must meet all criteria in rule 281—22.2(261E).

22.16(1) A student enrolled in an accredited nonpublic school who meets all eligibility requirements may apply to take courses under this division in the school district where the accredited nonpublic school is located, provided that neither the accredited nonpublic school nor the school district offers a comparable course.

22.16(2) A student under competent private instruction who meets the eligibility requirements in this rule and those in subparagraph 22.2(2)*"b"*(3) may apply to take courses under this division through the public school district in which the student is dually enrolled, provided that the resident school district does not offer a comparable course, and shall be allowed to take such courses on the same basis as a regularly enrolled student of the district.

22.16(3) Postsecondary institutions may require students to meet appropriate standards or requirements for entrance into a course. Such requirements may include prerequisite courses, scores on national academic aptitude and achievement tests, or other evaluation procedures to determine competency. Acceptance of a student into a course by a postsecondary institution is not a guarantee that a student will be enrolled in all requested courses. Priority may be given to postsecondary students before eligible secondary students are enrolled in courses. However, once an eligible secondary student has enrolled in a postsecondary course, the student cannot be displaced by another student for the duration of the course. Students shall not "audit" postsecondary courses. The student must take the course for credit and must meet all of the requirements of the course which are required of postsecondary students.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.17(261E) Eligible postsecondary courses. These rules are intended to implement the policy of the state to promote rigorous academic pursuits. Therefore, postsecondary courses eligible for students to enroll in under this division shall be limited to: nonsectarian courses; courses that are not comparable to courses offered by the school district where the student attends which are defined in rules adopted by the board of directors of the public school district; credit-bearing courses that lead to an educational degree; courses in the discipline areas of mathematics, science, social sciences, humanities, and vocational-technical education; and also the courses in career option programs offered by area schools established under the authorization provided in Iowa Code chapter 260C. A school district or accredited nonpublic school district shall grant academic or vocational-technical credit to an eligible student enrolled in an eligible postsecondary course.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.18(261E) Application process. To participate in this program, an eligible student shall make application to an eligible postsecondary institution to allow the eligible student to enroll for college credit in a nonsectarian course offered at the institution. A comparable course must not be offered by the school district or accredited nonpublic school the student attends. For purposes of these rules, "comparable" is not synonymous with identical, but means that the content of a course provided to a high school student for postsecondary credit shall not consist of substantially the same concepts and skills as the content of a course provided by the school district or accredited nonpublic school. If the postsecondary institution accepts an eligible student for enrollment under this division, the institution shall send written notice to the student, the student's parent or guardian in the case of a minor child, and the student's school district or accredited nonpublic school and the school district in the case of a nonpublic school student or student under competent private instruction, or the Iowa School for the Deaf or the Iowa Braille and Sight Saving School. The notice shall list the course, the clock hours the student will be attending the course, and the number of hours of college credit that the eligible student will receive from the eligible postsecondary institution upon successful completion of the course.

[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.19(261E) Credits. A school district, the Iowa School for the Deaf, the Iowa Braille and Sight Saving School, or an accredited nonpublic school shall grant high school credit to an eligible student

enrolled in a course under this division if the eligible student successfully completes the course as determined by the eligible postsecondary institution.

22.19(1) The board of directors of the school district, the board of regents for the Iowa School for the Deaf and the Iowa Braille and Sight Saving School, or authorities in charge of an accredited nonpublic school shall determine the number of high school credits that shall be granted to an eligible student who successfully completes a course.

22.19(2) Eligible students may take up to seven semester hours of credit during the summer months when school is not in session and receive credit for that attendance, if the student pays the cost of attendance for those summer credit hours.

22.19(3) The high school credits granted to an eligible student under this division shall count toward the graduation requirements and subject area requirements of the school district of residence, the Iowa School for the Deaf, the Iowa Braille and Sight Saving School, or the accredited nonpublic school of the eligible student. Evidence of successful completion of each course and high school credits and college credits received shall be included in the student's high school transcript.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.20(261E) Transportation. The parent or guardian of an eligible student who has enrolled in and is attending an eligible postsecondary institution under this division shall furnish transportation to and from the postsecondary institution for the student.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.21(261E) Tuition payments.

22.21(1) Not later than June 30 of each year, a school district shall pay a tuition reimbursement amount to a postsecondary institution that has enrolled its resident eligible students under this division, unless the eligible student is participating in open enrollment under Iowa Code section 282.18, in which case, the tuition reimbursement amount shall be paid by the receiving district. However, if a child's residency changes during a school year, the tuition shall be paid by the district in which the child was enrolled as of the date specified in Iowa Code section 257.6(1) or the district in which the child was counted under Iowa Code section 257.6(1)*"a"*(6). For students enrolled at the Iowa School for the Deaf and the Iowa Braille and Sight Saving School, the state board of regents shall pay a tuition reimbursement amount by June 30 of each year. The amount of tuition reimbursement for each separate course shall equal the lesser of:

a. The actual and customary costs of tuition, textbooks, materials, and fees directly related to the course taken by the eligible student.

b. Two hundred fifty dollars.

22.21(2) A secondary student is not eligible to enroll on a full-time basis in an eligible postsecondary institution under this program.

22.21(3) An eligible postsecondary institution that enrolls an eligible student under this division shall not charge the student for tuition, textbooks, materials, or fees directly related to the course in which the student is enrolled except that the student may be required to purchase equipment that becomes the property of the student. For the purposes of this subrule, equipment shall not include textbooks.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.22(261E) Tuition reimbursements and adjustments. The failure of a student to complete or otherwise to receive credit for an enrolled course requires the student, if 18 years of age or older, to reimburse the school district for the cost of the enrolled course. If the student is under 18 years of age, the student's parent or guardian shall sign the student registration form indicating that the parent or guardian assumes all responsibility for the costs directly related to the incomplete or failed coursework. If documentation is submitted to the school district that verifies the student was unable to complete the course for reasons including but not limited to the student's physical incapacity, a death in the student's immediate family, or the student's move to another school district, that verification shall constitute a waiver of the requirement that the student or parent or guardian pay the costs of the course to the school

district. An eligible postsecondary institution shall make pro rata adjustments to tuition reimbursement amounts based upon federal guidelines established pursuant to 20 U.S.C. §1091b.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.23(261E) Reserved.

DIVISION VI
CAREER ACADEMIES

281—22.24(261E) Career academies. A career academy is a program of study as defined in 281—Chapter 47. A course offered by a career academy shall not qualify as a regional academy course.

22.24(1) A career academy course may qualify as a concurrent enrollment course if it meets the requirements of Iowa Code section 261E.8.

22.24(2) The school district providing secondary education under this division shall be eligible for supplementary weighting under Iowa Code section 257.11(2), and the community college shall be eligible for funds allocated pursuant to Iowa Code section 260C.18A.

22.24(3) Information regarding career academies shall be provided by the school district to a student and the student's parent or guardian prior to the development of the student's core curriculum plan under Iowa Code section 279.61.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.25(261E) Reserved.

DIVISION VII
REGIONAL ACADEMIES

281—22.26(261E) Regional academies. A regional academy is a program established by a school district to which multiple school districts send students in grades 7 through 12. In addition to partnering with other school districts, the school district establishing a regional academy may enter into a contract or a chapter 28E agreement with one or more accredited nonpublic schools, area education agencies, community colleges, accredited public or nonpublic postsecondary institutions, businesses, and private agencies located within or outside of Iowa.

22.26(1) *Purpose.* A regional academy shall be established to build a culture of innovation for students and community; to diversify educational and economic opportunities by engaging in learning experiences that involve students in complex, real-world projects; and to develop regional or global innovation networks.

22.26(2) *Curriculum.* A regional academy shall include in its curriculum advanced-level courses. A regional academy may include in its curriculum career and technical courses and core curriculum coursework. The coursework may be delivered virtually, or via the ICN, asynchronous learning networks, or Internet-based delivery systems.

22.26(3) *Supplementary weighting.* School districts participating in regional academies are eligible for supplementary weighting as provided in Iowa Code section 257.11(2). The school districts participating in the regional academy shall enter into an agreement on how the funding generated by the supplementary weighting received shall be used and shall submit the agreement, as well as a copy of the minutes of meetings of the local school district boards of directors in which the boards approved the agreement, to the department for approval by October 1 of the year in which the districts intend to request supplementary weighting for the regional academy.

22.26(4) *Student plan.* Information regarding regional academies shall be provided to a student and the student's parent or guardian prior to the development of the student's core curriculum plan under Iowa Code section 279.61.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09; **ARC 9902B**, IAB 12/14/11, effective 1/18/12]

281—22.27(261E) Waivers for certain regional academies. A school district that establishes a regional academy may, but is not required to, submit to the department a request for waiver from any

statutory or regulatory provision identified by the school district as a barrier to the school district's goal of increasing student achievement or increasing competency-based learning opportunities for students. The school district shall submit a plan to the department demonstrating how the regional academy will increase student achievement or increase competency-based learning opportunities for students, how the regional academy will assess either the increase in student achievement or the increase in competency-based learning opportunities for students, and why the requested waiver or waivers are necessary. The waiver request and plan shall be submitted to the department for approval by January 1 of the school year immediately preceding the school year for which waiver is sought. The department may not waive or modify any statutory or regulatory provision relating to requirements applicable to school districts that pertain to audit requirements, investment of public funds, collective bargaining, open meetings, public records, civil rights, human rights, special education, contracts with and discharge of teachers and administrators, powers and duties of school boards, teacher quality, and school transportation.
[**ARC 9902B**, IAB 12/14/11, effective 1/18/12]

DIVISION VIII
INTERNET-BASED AND ICN COURSEWORK

281—22.28(261E) Internet-based coursework. The programming in this chapter may be delivered via Internet-based technologies including but not limited to the Iowa learning online program. An Internet-based course may qualify for additional supplemental weighting if it meets the requirements of Division IV or Division VI of this chapter. To qualify as a senior year plus course, an Internet-based course must comply with the appropriate provisions of this chapter.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

281—22.29(261E) ICN-based coursework. The ICN may be used to deliver coursework for the programming provided under this chapter subject to an appropriation by the general assembly for that purpose. A school district that provides courses delivered via the ICN shall receive supplemental funding as provided in Iowa Code section 257.11(7). To qualify as a senior year plus course, a course offered through the ICN must comply with the appropriate provisions of this chapter.
[**ARC 8187B**, IAB 10/7/09, effective 11/11/09]

These rules are intended to implement Iowa Code chapter 261E.

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CHAPTER 32
HIGH SCHOOL EQUIVALENCY DIPLOMA

[Prior to 9/7/88, see Public Instruction Department[670] Ch 8]

281—32.1(259A) Test. Applicants for high school equivalency diplomas shall satisfactorily complete the General Educational Development Tests published by the General Educational Development Testing Service of the American Council on Education, One Dupont Circle, Washington, D.C. 20036.

This rule is intended to implement Iowa Code section 259A.1.

281—32.2(259A) By whom administered. The General Educational Development Tests shall be administered in official testing centers authorized by the General Educational Development Testing Service, other agencies for whom scores are reported by the General Educational Development Testing Service, Defense Activities for Non-Traditional Education Support (DANTES), and other institutions and agencies upon special authorization of the Commission on Educational Credit and Credentials.

This rule is intended to implement Iowa Code section 259A.2.

281—32.3(259A) Minimum score. Applicants shall make a minimum standard score of 410 on each test and an average standard score of 450 on all five of the General Educational Development Tests.

[**ARC 9903B**, IAB 12/14/11, effective 1/18/12]

281—32.4(259A) Date of test. Test results dated prior to the date of application will be acceptable provided the tests were taken at an authorized center as specified in rule 32.2(259A).

281—32.5(259A) Retest. Any applicant not achieving the minimum standard test scores as defined in rule 281—32.3(259A), upon payment of a $10 fee, shall be permitted to make application for retest and scoring of the retest, provided that one of the following conditions is met:

32.5(1) A period of six months from the date of original testing has elapsed.

32.5(2) Applicant shall complete instruction in an adult education program, in the area or areas to be retested. This instruction shall be certified by an official of the adult education program to the chief or alternate examiner administering the retest(s).

This rule is intended to implement Iowa Code sections 259A.2 and 259A.5.

[**ARC 9903B**, IAB 12/14/11, effective 1/18/12]

281—32.6(259A) Application fee. The applicant or supporting agency shall pay an application fee of $25. This fee shall be paid to the official Iowa General Educational Development Testing Agency and shall allow for initial testing and scoring of the initial testing of the eligible candidate with the five General Educational Development Tests.

This rule is intended to implement Iowa Code sections 259A.2 and 259A.5.

[**ARC 9903B**, IAB 12/14/11, effective 1/18/12]

281—32.7(259A) Diploma, transcript, verification fees. Upon payment of $10 to the Iowa department of education, the department shall prepare and issue a high school equivalency diploma to an applicant who has achieved the minimum and average scores established in rule 281—32.3(259A). Upon payment of $10 to the Iowa department of education, the department shall prepare and issue a copy of an applicant's transcript to the applicant or person authorized by the applicant to request the transcript. Upon payment of $10 to the Iowa department of education, the department shall prepare and issue a verification that an applicant has earned a high school equivalency diploma to the applicant or person authorized by the applicant to request the verification.

[**ARC 9903B**, IAB 12/14/11, effective 1/18/12]

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CHAPTER 64
CHILD DEVELOPMENT COORDINATING COUNCIL

281—64.1(256A,279) Purpose. These rules structure the child development coordinating council, whose purpose is to promote the provision of services to at-risk three- and four-year-old children and public school child development programs for at-risk three-, four-, and five-year-old children. These rules also set forth the procedures and conditions under which state funds shall be made available to assist local child development programs for at-risk children.

281—64.2(256A,279) Definitions.

"Applicant" means a public or private nonprofit organization, licensed by the department of human services or approved by the department of education, which applies for the state child development funds.

"At-risk student" means a student who meets one or more of the primary and secondary risk factors stated in rules 281—64.7(256A,279) and 281—64.8(256A,279).

"Child development grants" means the funds awarded by the council to assist child development programs.

"Council" means the child development coordinating council.

"Department" means the department of education.

"Grantee" means the applicant designated to receive child development grants.

"Low-income family" means a family who meets the financial eligibility criteria for free meals offered under the child nutrition program.

"Project" means the child development program for which grant funds are requested.

"Public school applicant" means a public school district approved by the department which applies for the state public school child development funds.

"Public school child development grants" means the funds awarded by the council to assist public school child development programs as established in Iowa Code section 279.51.

"Public school grantee" means the applicant designated to receive public school child development grants.

"Public school project" means the public school child development program for which grant funds are requested.

281—64.3(256A,279) Child development coordinating council. The council members shall be as provided in Iowa Code section 256A.2. The Iowa resident parent shall be chosen by the Head Start director's association in consultation with the Head Start parents' association.

281—64.4(256A,279) Procedures.

64.4(1) A quorum shall consist of two-thirds of the members.

64.4(2) When a quorum is present, a position shall pass when approved by a majority of voting members.

64.4(3) The council shall meet at least four times per year and may meet more often at the call of the chair or a majority of voting members.

64.4(4) The chairperson and vice-chair shall be elected by the council for a term of two years.

281—64.5(256A,279) Duties. The duties of the council shall be as provided in Iowa Code sections 256A.3 and 279.51.

281—64.6(256A,279) Eligibility identification procedures. In a year in which funds are made available by the Iowa legislature, the council shall grant awards to child development programs for at-risk three- and four-year-old children and public school child development programs for at-risk three-, four-, and five-year-old children on a competitive basis.

281—64.7(256A,279) Primary eligibility.

64.7(1) *Child development grants.* At least 80 percent of the funded available enrollment slots for at-risk three- and four-year-old children shall be directed to serve children in primary eligibility categories as follows:

a. Children reaching three or four years of age on or before September 15 of the contract year; and

b. Members of a low-income family.

64.7(2) *Public school child development grants.* At least 80 percent of the funded available enrollment for at-risk three-, four-, and five-year-old children in public school child development programs shall be directed to serve children in primary eligibility categories as follows:

a. Children reaching three, four, or five years of age on or before September 15 of the contract year; and

b. Members of a low-income family.

64.7(3) *Enrollment criteria.* Applicants must document the number of children enrolled under primary eligibility and the criteria used for enrollment.

281—64.8(256A,279) Secondary eligibility.

64.8(1) *Criteria.* Up to 20 percent of the available funded child development enrollment slots for at-risk may be filled by children who are three or four years of age on or before September 15 or public school enrollment slots by children who are three, four, or five years of age on or before September 15; are above the income eligibility guidelines provided that they are served on a sliding fee schedule determined at the local level; and are eligible according to one or more of the following criteria if the child:

1. Is functioning below chronological age in two or more developmental areas, one of which may be English proficiency, as determined by an appropriate professional;
2. Was born at biological risk, such as low birth weight (under 1500 grams—approximately three pounds) or with a diagnosed medical disorder, such as spina bifida or Down's syndrome;
3. Was born to a parent who was under the age of 18; or
4. Resides in a household where one or more of the parents or guardian:

Has not completed high school;

Has been identified as a substance abuser;

Has been identified as chronically mentally ill;

Is illiterate;

Is incarcerated; or

Is a child or spouse abuser.

5. Has other special circumstances, such as foster care or being homeless.

The program may include children not at risk, provided they are at full pay and meet other age requirements.

64.8(2) *Enrollment criteria.* Applicants must document the number of children enrolled under secondary eligibility and the criteria used for enrollment.

281—64.9(256A,279) Grant awards criteria.

64.9(1) *Criteria points.* The following information shall be provided and points shall be awarded to applicants based on the following criteria as stated in the request for proposal:

1. Provision of a comprehensive child development program.
2. Limited class size.
3. Limited pupil-teacher ratios.
4. Provision of parental involvement.
5. Demonstration of community support.
6. Utilization of services provided by other community agencies.
7. Use of qualified teachers.
8. Existence of a plan for program evaluation including, but not limited to, measurement of student outcomes.

9. Developmentally appropriate practices.

64.9(2) *Additional grant components.* The following information shall be provided and points shall be awarded to applicants based on the following additional components.

1. Program summary.
2. Research documentation.
3. Identification and documentation of local at-risk population.
4. Letters of community support.
5. Program budget (administrative costs not to exceed 10 percent of total award).

281—64.10(256A,279) Application process. The council shall announce through public notice the opening of an application period.

281—64.11(256A,279) Request for proposals. Applications for the child development grants and public school grants shall be distributed by the department upon request.

The request for proposal for public school grants for at-risk three-, four-, and five-year-old children shall document all day, everyday kindergarten to serve at-risk five-year-old children, which may be a part-day combination of three- to five-year-old at-risk children.

Proposals not containing the specified information or not received by the specified date may not be considered.

All applications shall be submitted in accordance with instructions in the requests for proposals. The proposals shall be submitted to the department.

281—64.12(256A,279) Grant process.

64.12(1) An applicant shall make formal response using forms issued and procedures established by the council.

64.12(2) A rating team shall review and rank the proposals and shall be composed of persons with expertise in child development programs and fiscal management experience.

64.12(3) The council shall have the final discretion to award funds.

64.12(4) The council shall notify successful applicants and shall provide to each of them a contract for signature. This contract shall be signed by an official with authority to bind the applicant and shall be returned to the council prior to the award of any funds under this program.

281—64.13(256A,279) Award contracts. Administrative costs under these programs shall be limited to 10 percent of the total award.

281—64.14(256A,279) Notification of applicants. Applicants shall be notified within 45 days following the due date for receipt of proposals as to whether their request shall be funded. Funds for grants approved by the council shall be awarded through a contract entered into by the department and the applicant.

281—64.15(256A,279) Grantee responsibilities.

64.15(1) The grantee shall maintain records which include but are not limited to:

a. Information on children and families served.
b. Direct services provided to children.
c. Record of expenditures.
d. Other appropriate information specified by the council necessary to the overall evaluation.

64.15(2) Continuation programs shall participate in the Self-Study and Accreditation Program of the National Academy of Early Childhood Programs. Programs shall have two years from the date of initial funding to complete the self-study process. Programs shall have three years from the date of initial funding to attain accreditation. Programs unable to attain accreditation by the end of the three-year period may apply for a waiver of accreditation by March 15 of the third year. Waivers shall be awarded at the discretion of the council. Programs not attaining accreditation or not receiving a waiver of accreditation will be terminated.

64.15(3) New/expansion programs shall participate in the Self-Study and Accreditation Program of the National Academy of Early Childhood Programs during their first year of council funding. New/expansion programs shall be granted a waiver of accreditation during their first year of funding. New/expansion programs must complete self-study and attain accreditation during their second year of funding. Programs not able to attain accreditation during their second year may apply for a waiver of accreditation by March 15 of the current fiscal year. Waivers shall be granted at the discretion of the council. Programs not attaining accreditation or not receiving waivers will be terminated.

64.15(4) Grantees shall provide quarterly reports that include information detailing progress toward goals and objectives, expenditures and services provided on forms provided for those reports. Failure to submit reports by the due date shall result in suspension of financial payments to the grantee until the time that the report is received. No new awards shall be made for continuation programs where there are delinquent reports from prior grants.

64.15(5) Grantees may direct the use of moneys received to serve any qualifying child ranging in age from three years old to five years old, regardless of the age of population indicated on the grant request in the grantee's initial year of application. A grantee is encouraged to consider the degree to which the program complements existing local programs and services for three-year-old, four-year-old, and five-year-old at-risk children, including other child care and preschool services, services provided through a school district, and services available through an area education agency.

[**ARC 9904B**, IAB 12/14/11, effective 1/18/12]

281—64.16(256A,279) Withdrawal of contract offer. If the applicant and the department are unable to successfully negotiate a contract, the council may withdraw the award offer.

281—64.17(256A,279) Evaluation. The grantee shall cooperate with the council and provide requested information to determine how well the goals and objectives of the project are being met.

281—64.18(256A,279) Contract revisions and budget reversions. The grantee shall immediately inform the department of any revisions in the project budget. The department and the grantee may negotiate a revision to the contract to allow for expansion or modification of services but shall not increase the total amount of the grant. The council shall approve revised contracts if the revision is in excess of 10 percent of a budget category. Grantees who revert 3 percent or more of their program budget at the end of the 1998 budget year, and every budget year thereafter, will have that dollar amount permanently deducted from all subsequent grant awards.

281—64.19(256A,279) Termination for convenience. The contract may be terminated in whole or in part when both parties agree that the continuation of the project would not produce beneficial results commensurate with the future expenditure of funds. The parties shall agree upon the termination conditions, including the effective date, and in the case of partial terminations, the portion to be terminated. The grantee shall not incur new obligations for the terminated portion after the effective date, and shall cancel as many outstanding obligations as possible.

281—64.20(256A,279) Termination for cause. The contract may be terminated in whole or in part at any time before the date of completion, whenever it is determined by the council that the grantee has failed to comply substantially with the conditions of the contract. The grantee shall be notified in writing by the department of the reasons for the termination and the effective date. The grantee shall not incur new obligations for the terminated portion after the effective date of termination and shall cancel as many outstanding obligations as possible.

The department shall administer the child development grants and public school grants contingent upon their availability. If there is a lack of funds necessary to fulfill the fiscal responsibility of the child development grants and the public school grants, the contracts shall be terminated or renegotiated. The council may terminate or renegotiate a contract upon 30 days' notice when there is a reduction of funds by executive order.

The contract may be terminated in whole or in part by June 30 of the current fiscal year in the event that the grantee has not attained accreditation by the National Academy of Early Childhood Programs or has not been awarded a waiver of accreditation by the council.

281—64.21(256A,279) Responsibility of grantee at termination. Within 45 days of the termination, the grantee shall supply the department with a financial statement detailing all costs up to the effective date of the termination. If the grantee expends money for other than specified budget items approved by the council, the grantee shall return moneys for unapproved expenditures.

281—64.22(256A,279) Appeal from terminations. Any agency or public school aggrieved by a unilateral termination of a contract pursuant to 281—64.20(256A,279) may appeal the decision to the director of the department in writing within 30 days of the decision to terminate. The hearing procedures found at 281—Chapter 6 shall be applicable to appeals of terminated grantees, except that 281—subrules 6.10(3) and 6.10(4) and rules 281—6.11(290) and 281—6.12(290) do not apply to decisions of the director.

In the notice of appeal, the grantee shall give a short and plain statement of the reason for the appeal.

The director shall issue a decision within a reasonable time, not to exceed 120 days from the date of the hearing.

281—64.23(256A,279) Refusal to issue ruling. The director may refuse to issue a ruling or decision upon an appeal for good cause. Good cause includes, but is not limited to, the following reasons:

1. The appeal is untimely;
2. The appellant lacks standing to appeal;
3. The appeal is not in the required form or is based upon frivolous grounds;
4. The appeal is moot because the issues raised in the notice of appeal or at the hearing have been settled by the parties;
5. The termination of the grant was beyond the control of the department because it was due to lack of funds available for the contract.

281—64.24(256A,279) Request for Reconsideration. A disappointed applicant who has not been approved for funding may file a Request for Reconsideration with the director of the department in writing within 10 days of the decision to decline to award a grant. In order to be considered by the director, the Request for Reconsideration shall be based upon one of the following grounds:

1. The decision process was conducted in violation of statute or rule;
2. The decision violates state or federal law, policy, or rule (to be cited in the Request);
3. The decision process involved a conflict of interest.

Within 20 days of filing a Request for Reconsideration, the requester shall submit all written documentation, evidence, or argument in support of the request. The director shall notify the child development coordinating council of the request and shall provide the council an opportunity to defend its decision with written documentation, evidence, or argument, which shall be submitted within 20 days of receipt of the request. The council shall provide copies of all documents to the requester at the time the items are submitted to the director.

The director shall issue a decision granting or denying the Request for Reconsideration within 30 days of the receipt of the evidence, or no later than 60 days from the date of Request for Reconsideration, unless a later date is agreeable to the requester and the council.

281—64.25(256A,279) Refusal to issue decision on request. The director may refuse to issue a decision on a Request for Reconsideration upon good cause. Good cause includes, but is not limited to, the following reasons:

1. The request was untimely;
2. The requester lacks standing to seek reconsideration;
3. The request is not based on any of the available grounds in rule 281—64.22(256A,279), or is merely frivolous or vexatious;

4. The requester failed to provide documentation, evidence or argument in support of its request;
5. The request is moot due to negotiation and settlement of the issue(s).

281—64.26(256A,279) Granting a Request for Reconsideration. If the director grants a Request for Reconsideration, the council shall consider the grantee's application in accordance with the director's findings and decision.

These rules are intended to implement Iowa Code chapter 256A and section 279.51.

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CHAPTER 102
PROCEDURES FOR CHARGING AND INVESTIGATING INCIDENTS OF ABUSE OF STUDENTS BY SCHOOL EMPLOYEES

281—102.1(280) Statement of intent and purpose. It is the purpose and intent of these rules to create a uniform procedure for the reporting, investigation, and disposition of allegations of abuse of students directly resulting from the actions of school employees or their agents. The scope of this policy is limited to protecting children in prekindergarten and K-12 educational programs.

281—102.2(280) Definitions.

"Abuse" may fall into either of the following categories:

1. *"Physical abuse"* means nonaccidental physical injury to the student as a result of the actions of a school employee.

2. *"Sexual abuse"* means any sexual offense as defined by Iowa Code chapter 709 or Iowa Code section 728.12(1). The term also encompasses acts of the school employee that encourage the student to engage in prostitution as defined by Iowa law, as well as inappropriate, intentional sexual behavior, or sexual harassment by the school employee toward a student.

"Board of educational examiners" means the state board as created in Iowa Code chapter 272.

"Designated investigator" means the person or persons appointed by the board of directors of a public school district, or the authorities in control of a private school, at level one, to investigate allegations or reports of abuse of students by school employees and shall also refer to the appointed alternate.

"Incident" means an occurrence of behavior that meets the definition of physical or sexual abuse in these rules.

"Injury" occurs when evidence of it is still apparent at least 24 hours after the occurrence.

"Nonpublic school" means any school in which education is provided to a student, other than in a public school or in the home of the student.

"Preponderance of evidence" means reliable, credible evidence that is of greater weight than evidence offered in opposition to it.

"Public school" means any school directly supported in whole or in part by taxation.

"Reasonable force" is that force and no more which a reasonable person, in like circumstances, would judge to be necessary to prevent an injury or loss and can include deadly force if it is reasonable to believe that such force is necessary to avoid injury or risk to one's life or safety or the life or safety of another, or it is reasonable to believe that such force is necessary to resist a like force or threat.

"School employee" means a person who works for pay or as a volunteer under the direction and control of:

1. The board of directors or any administrator of a public school district.
2. The board or authorities in control of a nonpublic school.
3. The board of directors or administrator of an agency called upon by a school official to provide services in an educational capacity to students.
4. A residential institution, not currently covered by Iowa Code chapter 232, providing educational services.

School employees are of two classes: certificated (licensed) and noncertificated (unlicensed). A certificated employee holds an Iowa teacher's certificate issued by the department of education or a license issued by the state board of educational examiners.

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors or other verbal or physical conduct of a sexual nature when:

1. Submission to the conduct is made either implicitly or explicitly a term or condition of the student's education or benefits;
2. Submission to or rejection of the conduct is used as the basis for academic decisions affecting that student; or

3. The conduct has the purpose or effect of substantially interfering with a student's academic performance by creating an objectively intimidating, hostile, or offensive education environment.

"Student" means a person enrolled in a public or nonpublic school or a prekindergarten program in a public or nonpublic school established under Iowa law, a child enrolled in a day care program operated by a public school or merged area school under Iowa Code section 279.49, or is a resident between the ages of 5 and 21 of a state facility providing incidental formal education.
[**ARC 9377B**, IAB 2/23/11, effective 3/30/11]

281—102.3(280) Jurisdiction. To constitute a violation of these rules, acts of the school employee must be alleged to have occurred on school grounds, on school time, on a school-sponsored activity, or in a school-related context. To be investigable, the written report must include basic information showing that the student allegedly abused is or was a student at the time of the incident, that the alleged act of the school employee resulted in injury or otherwise meets the definition of abuse in these rules, and that the person responsible for the act is currently a school employee.

If the report is not investigable due to the absence of any of the jurisdictional facts, the level-one investigator shall dismiss the complaint as lacking jurisdiction and notify the person filing the report of abuse of the options remaining as listed in 102.10"9." The dismissal of a report of abuse for lack of jurisdiction does not bar school officials from further forms of investigation and disciplinary action against an employee.
[**ARC 9377B**, IAB 2/23/11, effective 3/30/11]

281—102.4(280) Exceptions.

102.4(1) The following do not constitute physical abuse, and no school employee is prohibited from:

a. Using reasonable and necessary force, not designed or intended to cause pain:

(1) To quell a disturbance or prevent an act that threatens physical harm to any person.

(2) To obtain possession of a weapon or other dangerous object within a pupil's control.

(3) For the purposes of self-defense or defense of others as provided for in Iowa Code section 704.3.

(4) For the protection of property as provided for in Iowa Code section 704.4 or 704.5.

(5) To remove a disruptive pupil from class, or any area of school premises or from school-sponsored activities off school premises.

(6) To prevent a student from the self-infliction of harm.

(7) To protect the safety of others.

b. Using incidental, minor, or reasonable physical contact to maintain order and control.

102.4(2) In determining the reasonableness of the contact or force used, the following factors shall be considered:

a. The nature of the misconduct of the student, if any, precipitating the physical contact by the school employee.

b. The size and physical condition of the student.

c. The instrumentality used in making the physical contact.

d. The motivation of the school employee in initiating the physical contact.

e. The extent of injury to the student resulting from the physical contact.

281—102.5(280) Duties of school authorities. The board of directors of a public school district and the authorities in control of a nonpublic school shall:

102.5(1) Annually identify at least one designated investigator and alternate investigator at an open public meeting.

102.5(2) Adopt written procedures that establish persons to whom the school authorities will delegate a second level of investigation beyond the level-one procedures specifically described in these rules, including law enforcement authorities or the county attorney's office, personnel of the local office of the department of human services, or private parties experienced and knowledgeable in the area of abuse investigation. The second-level investigator shall not be a school employee and shall be considered an independent contractor if remunerated for services rendered.

The adopted procedures shall conform to these rules and shall include provisions for the safety of a student when, in the opinion of the investigator, the student would be placed in imminent danger if continued contact is permitted between the school employee and the student. These provisions shall include the options of:

a. Temporary removal of the student from contact with the school employee.

b. Temporary removal of the school employee from service.

c. Any other appropriate action permissible under Iowa law to ensure the student's safety.

The adopted written procedures shall include a statement that the investigators appointed and retained under this chapter shall have access to any educational records of the allegedly abused student and access to the student for purposes of interviewing and investigating the allegation.

102.5(3) Annually publish the names or positions and telephone numbers or other contact information of the designated investigator and alternate:

a. In the student handbook,

b. In a local newspaper of general circulation, and

c. Prominently post the same information in all buildings operated by the school authorities.

102.5(4) Arrange for in-service training for the designated investigator and alternate. Initial training should be undertaken within six months of appointing a level-one investigator or alternate. Follow-up training should be undertaken at least once every five years.

102.5(5) Place on administrative leave a school employee who is the subject of an investigation under this chapter of an alleged incident of physical or sexual abuse, once the Level One investigator has determined that the written complaint is investigable under rule 281—102.3(280).

102.5(6) Report to the board of educational examiners the results of an investigation that finds that the school employee's conduct constitutes a crime.

[**ARC 9377B**, IAB 2/23/11, effective 3/30/11; **ARC 9905B**, IAB 12/14/11, effective 1/18/12]

281—102.6(280) Filing of a report.

102.6(1) *Who may file.* Any person who has knowledge of an incident of abuse of a student committed by a school employee may file a report with the designated investigator.

102.6(2) *Content of report.* The report shall be in writing, signed, and, if signed by a minor, witnessed by a person of majority age and shall contain the following information:

a. The full name, address, and telephone number of the person filing.

b. The full name, age, address, telephone number, and attendance center of the student.

c. The name and place of employment of the school employee(s) or agents who allegedly committed the abuse.

d. A concise statement of the facts surrounding the incident, including date, time, and place of occurrence, if known.

e. A list of possible witnesses by name, if known.

f. Names and locations of any and all persons who examined, counseled or treated the student for the alleged abuse, including the dates on which those services were provided, if known.

102.6(3) *Incomplete reports.* The designated investigator shall aid parties requesting assistance in completing the report. An incomplete report shall not be rejected unless a reasonable person would conclude that the missing information which is unable to be provided by the reporter would render investigation futile or impossible. An unsigned (anonymous) or unwitnessed report may be investigated, but the designated investigator then has no duty to report findings and conclusions to the reporter.

[**ARC 9377B**, IAB 2/23/11, effective 3/30/11]

281—102.7(280) Receipt of report. Any school employee receiving a report of alleged abuse of a student by a school employee shall immediately give the report to the designated investigator or alternate and shall not reveal the existence or content of the report to any other person.

281—102.8(280) Duties of designated investigator—physical abuse allegations.

102.8(1) Upon receipt of the report, the designated investigator shall make and provide a copy of the report to the person filing, to the student's parent or guardian if different from the person filing and to the

supervisor of the employee named in the report. The school employee named in the report shall receive a copy of the report at the time the employee is initially interviewed by any investigator. However, if this action would conflict with the terms of a contractual agreement between the employer and employee, the terms of the contract shall control.

102.8(2) Within five school days of receipt of a report of physical abuse, the designated investigator shall conduct and complete an informal investigation after reviewing the report to determine that the allegations, if true, support the exercise of jurisdiction pursuant to rule 281—102.3(280).

102.8(3) If, in the investigator's opinion, the magnitude of the allegations in the report suggests immediate and professional investigation is necessary, the designated investigator may temporarily defer the level-one investigation. In cases of deferred investigation, the investigator shall contact appropriate law enforcement officials, the student's parent or guardian and the person filing the report, if different from the student's parent or guardian, documenting in writing the action taken.

102.8(4) The investigator shall interview the allegedly abused student, any witnesses or persons who may have knowledge of the circumstances contained in the report, and the school employee named in the report. The investigator shall exercise prudent discretion in the investigative process to preserve the privacy interests of the individuals involved. To the maximum extent possible, the investigator shall maintain the confidentiality of the report.

102.8(5) The designated investigator's role is not to determine the guilt or innocence of the school employee, the applicability of the exceptions or reasonableness of the contact or force listed in rule 281—102.4(280). The designated investigator shall determine, by a preponderance of the evidence, whether it is likely that an incident took place between the student and the school employee. However, if the complaint has been withdrawn, the allegation recanted, or the employee has resigned, admitted the violation, or agreed to relinquish the employee's teacher's certificate or license, the designated investigator may conclude the investigation at level one. The designated investigator shall follow the applicable provisions of 102.11(2)*"b"* and 102.11(2)*"c"* when resolution occurs at level one.

The level-two investigator appointed, contracted, requested or retained under subrule 102.5(2), when called upon for further investigation, shall consider the applicability of the exceptions listed in rule 281—102.4(280) and the reasonableness of the contact or force used under subrule 102.4(2) in reaching conclusions as to the occurrence of physical abuse as defined by these rules.

102.8(6) Within 15 calendar days of receipt of the report, the designated investigator shall complete a written investigative report, unless investigation was temporarily deferred.

[**ARC 9377B**, IAB 2/23/11, effective 3/30/11]

281—102.9(280) Duties of designated investigator—sexual abuse allegations.

102.9(1) Upon receipt of the report, the designated investigator shall make and provide a copy of the report to the person filing the report, to the student's parent or guardian if different from the person filing the report, and to the supervisor of the employee named in the report. The school employee named in the report shall receive a copy of the report at the time the employee is initially interviewed by any investigator. However, if this action would conflict with the terms of a contractual agreement between the employer and employee, the terms of the contract shall control. The designated investigator shall not interview the school employee named in a report of sexual abuse until after a determination that jurisdiction exists is made, the allegedly abused student has been interviewed, and a determination is made that the investigation will not be deferred under subrule 102.9(5).

102.9(2) Upon receipt of a report of sexual abuse or other notice of an allegation of sexual abuse, the designated investigator shall review the facts alleged to determine that the allegations, if true, support the exercise of jurisdiction pursuant to 281—102.3(280) of these rules.

102.9(3) The investigator shall notify the parent, guardian, or legal custodian of a child in prekindergarten through grade six of the date and time of the interview and of the right to be present or to see and hear the interview or to send a representative in the parent's, guardian's, or legal custodian's place. The investigator shall interview the allegedly abused student as soon as possible, but in no case later than five days from the receipt of a report or notice of the allegation of sexual abuse. The investigator may record the interview electronically.

The investigator shall exercise prudent discretion in the investigative process to preserve the privacy interests of the individuals involved. To the maximum extent possible, the investigator shall maintain the confidentiality of the report.

102.9(4) The designated investigator's role is not to determine the guilt or innocence of the school employee. The designated investigator shall determine, by a preponderance of the evidence and based upon the investigator's training and experience and the credibility of the student, whether it is likely that an incident took place between the student and the school employee. However, if the complaint has been withdrawn, the allegation recanted, or the employee has resigned, admitted the violation, or agreed to relinquish the employee's teacher's certificate or license, the designated investigator may conclude the investigation at level one. The designated investigator shall follow the applicable provisions of 102.11(2)*"b"* and 102.11(2)*"c"* when resolution occurs at level one.

102.9(5) If, in the investigator's opinion, it is likely that an incident in the nature of sexual abuse as defined by Iowa Code chapter 709 or section 728.12(1) took place, the investigator shall temporarily defer further level-one investigation. In cases of deferred investigation, the investigator shall immediately contact appropriate law enforcement officials, notifying the student's parent or guardian, and the person filing the report, if different from the student's parent or guardian, of the action taken.

If, in the investigator's opinion, an incident occurred that would not constitute sexual abuse as defined in Iowa Code chapter 709 or sexual exploitation as defined by Iowa Code section 728.12(1), but that was in the nature of inappropriate, intentional sexual behavior by the school employee, further investigation is warranted. The investigator may proceed to interview the school employee named in the report. Prior to interviewing any collateral sources who may have knowledge of the circumstance contained in the report, the investigator shall provide notice of the impending interview of student witnesses who are in prekindergarten through grade six, to their parent, guardian, or legal custodian, and may provide notice to the parent or guardian of older students, prior to interviewing those students.

If, in the investigator's opinion, the allegation of sexual abuse is unfounded either because the conduct did not occur or the conduct did not meet the definition of abuse in these rules, further investigation is not warranted. The investigator shall notify the student's parent or guardian, the person filing the report, if different from the student's parent or guardian, and the school employee named in the report of this conclusion in a written investigative report.

102.9(6) Within 15 calendar days of receipt of the report or notice of alleged sexual abuse, the designated investigator shall complete a written investigation report unless the investigation was temporarily deferred.

[**ARC 9377B**, IAB 2/23/11, effective 3/30/11]

281—102.10(280) Content of investigative report. The written investigative report shall include:

1. The name, age, address, and attendance center of the student named in the report.
2. The name and address of the student's parent or guardian and the name and address of the person filing the report, if different from the student's parent or guardian.
3. The name and work address of the school employee named in the report as allegedly responsible for the abuse of the student.
4. An identification of the nature, extent, and cause, if known, of any injuries or abuse to the student named in the report.
5. A general review of the investigation.
6. Any actions taken for the protection and safety of the student.
7. A statement that, in the investigator's opinion, the allegations in the report are either:

- Unfounded. (It is not likely that an incident, as defined in these rules, took place), or
- Founded. (It is likely that an incident took place.)

8. The disposition or current status of the investigation.
9. A listing of the options available to the parents or guardian of the student to pursue the allegations. These options include, but are not limited to:

- Contacting law enforcement.
- Contacting private counsel for the purpose of filing a civil suit or complaint.

- Filing a complaint with the board of educational examiners if the school employee is certificated.

The investigator shall retain the original and provide a copy of the investigative report to the school employee named in the report, the school employee's supervisor and the named student's parent or guardian. The person filing the report, if not the student's parent or guardian, shall be notified only that the level-one investigation has been concluded and of the disposition or anticipated disposition of the case.

281—102.11(280) Founded reports—designated investigator's duties.

102.11(1) The investigator shall notify law enforcement authorities in founded cases of serious physical abuse and in any founded case of sexual abuse under Iowa Code chapter 709 or sexual exploitation under Iowa Code section 728.12(1). In founded cases of less serious physical incidents or sexual incidents not in the nature of statutory sexual abuse or exploitation as defined by Iowa law, the investigator shall arrange for the level-two investigator to carry out a professional investigation unless the level-one investigation has resulted in a final disposition of the investigation. In addition, the designated investigator shall give a copy of the investigative report to the employee's supervisor and document all action taken.

102.11(2) Upon receipt of the level-two investigator's report under rule 281—102.12(280) or upon resolution of the investigation at level one, the designated investigator shall:

a. Forward copies of the level-two investigator's report to the student's parent or guardian, the school employee named in the complaint, and the school employee's supervisor; notify the person filing the report, if different from the student's parent or guardian, of the disposition of the case or current status of the investigation;

b. File a complaint against the school employee who has been found to have physically or sexually abused a student, if that employee holds a teaching certificate, coaching authorization, or practitioner license, with the board on behalf of the school or district by obtaining the superintendent's signature on the complaint in cases where the level-two investigator or law enforcement officials have concluded abuse occurred as defined in these rules or where the employee has admitted the violation or agreed to surrender the employee's certificate or license. The designated investigator has discretion to file a complaint with the board in situations where the employee has resigned as a result of the allegation or investigation but has not admitted that a violation occurred. In the event an employee holding a school bus driver permit has been found to have physically or sexually abused a student, the designated investigator shall file a written complaint with the school transportation consultant at the department of education; the designated investigator shall file a written complaint with the local school board in founded cases involving other nonlicensed school employees; and

c. Arrange for counseling services for the student on request of the student, or the student's parent or guardian.

[**ARC 9377B**, IAB 2/23/11, effective 3/30/11]

281—102.12(280) Level-two investigator's duties. Upon referral by the designated investigator, the level-two investigator appointed, contracted, requested or retained under subrule 102.5(2) shall review the report of abuse and the designated investigator's report, if any, promptly conduct further investigation and create a written narrative report. The level-two investigator's report shall state:

1. Conclusions as to the occurrence of the alleged incident; and
2. Conclusions as to the applicability of the exceptions to physical abuse listed in rule 281—102.4(280); or
3. Conclusions as to the nature of the sexual abuse, if any; and
4. Recommendations regarding the need for further investigation.

The written report shall be delivered to the designated investigator as soon as practicable.

The level-two investigator shall exercise prudent discretion in the investigative process to preserve the privacy interests of the individuals involved. To the maximum extent possible, the level-two investigator shall maintain the confidentiality of the report.

281—102.13(280) Retention of records. Any record created by an investigation shall be handled according to formally adopted or bargained policies on the maintenance of personnel or other confidential records. Notes, tapes, memoranda, and related materials compiled in the investigation shall be retained by the public or nonpublic school for a minimum of two years.

Unfounded reports shall not be placed in an employee's personnel file. If a report is founded at level one and unfounded at level two, the founded report from the level-one investigator shall be removed immediately upon receipt of an unfounded report from the level-two investigator.

281—102.14(280) Substantial compliance. Because investigative procedures seldom allow for rigid observance of the protocol, substantial compliance with the rules is required with the overriding goal of reaching a fair and unbiased resolution of the complaint.

281—102.15(280) Effective date. These rules are effective on July 1, 1989, for school years 1989-90 and thereafter.

These rules are intended to implement Iowa Code section 280.17.

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[1] Effective date of the following delayed seventy days by the Administrative Rules Review Committee at its meeting held January 5, 1993: 102.2(280), definitions of "Abuse," "Board of educational examiners," "Incident," "Injury," "Sexual harassment"; 102.3(280); 102.4(2), introductory paragraph; 102.8(5); 102.9(1), first sentence; 102.9(3), introductory paragraph; 102.9(4); 102.9(5), first and second unnumbered paragraphs; 102.10(280)"7"; 102.10(280), last paragraph; 102.11(280)"2"; 102.12(280), introductory paragraph; new 102.14(280); delay lifted by the Committee on February 8, 1993, effective February 9, 1993.

CHAPTER 13
ISSUANCE OF TEACHER LICENSES AND ENDORSEMENTS

[Prior to 1/14/09, see Educational Examiners Board[282] Ch 14]

282—13.1(272) All applicants desiring Iowa licensure. Licenses are issued upon application filed on a form provided by the board of educational examiners and upon completion of the following:

13.1(1) *National criminal history background check.* An initial applicant will be required to submit a completed fingerprint packet that accompanies the application to facilitate a national criminal history background check. The fee for the evaluation of the fingerprint packet will be assessed to the applicant.

13.1(2) *Iowa division of criminal investigation background check.* An Iowa division of criminal investigation background check will be conducted on initial applicants. The fee for the evaluation of the DCI background check will be assessed to the applicant.

13.1(3) *Temporary permits.* The executive director may issue a temporary permit to an applicant for any type of license, certification, or authorization issued by the board, after receipt of a fully completed application, including certification from the applicant of completion of the Praxis II examination, if required; determination that the applicant meets all applicable prerequisites for issuance of the license, certification, or authorization; and satisfactory evaluation of the Iowa criminal history background check. The temporary permit shall serve as evidence of the applicant's authorization to hold a position in Iowa schools, pending the satisfactory completion of the national criminal history background check and the board's receipt of verification of completion of the Praxis II examination. The temporary permit shall expire upon issuance of the requested license, certification, or authorization or 90 days from the date of issuance of the permit, whichever occurs first, unless the temporary permit is extended upon a finding of good cause by the executive director.

282—13.2(272) Applicants from recognized Iowa institutions. An applicant for initial licensure shall complete either the teacher, administrator, or school service personnel preparation program from a recognized Iowa institution or an alternative program recognized by the Iowa board of educational examiners. A recognized Iowa institution is one which has its program of preparation approved by the state board of education according to standards established by said board, or an alternative program recognized by the state board of educational examiners. Applicants shall complete the requirements set out in rule 282—13.1(272) and shall also have the recommendation for the specific license and endorsement(s) or the specific endorsement(s) from the designated recommending official at the recognized education institution where the preparation was completed.

282—13.3(272) Applicants from non-Iowa institutions.

13.3(1) *Requirements for applicants from non-Iowa institutions.* An applicant for licensure who completes the teacher, administrator, or school service personnel preparation program from a non-Iowa institution shall verify the requirements of either subrule 13.18(4) or 13.18(5).

13.3(2) *Requirements for applicants from non-Iowa traditional teacher preparation programs.* Provided all requirements for Iowa licensure have been met through a state-approved regionally accredited teacher education program at the graduate or undergraduate level in which college or university credits were given and student teaching was required, the applicant shall:

a. Provide a recommendation for the specific license and endorsement(s) from the designated recommending official at the recognized institution where the preparation was completed, and

b. Submit a copy of a valid regular teaching certificate or license exclusive of a temporary, emergency or substitute license or certificate, and

c. Provide verification of successfully passing mandated tests in the state in which the applicant is currently licensed if the applicant has fewer than three years of teaching experience.

13.3(3) *Requirements for applicants from out-of-state nontraditional teacher preparation programs.* An applicant who holds a valid license from another state and whose preparation was completed through a state-approved nontraditional teacher preparation program must:

a. Hold a baccalaureate degree with a minimum cumulative grade point average of 2.50 on a 4.0 scale from a regionally accredited institution.

b. Provide a valid out-of-state teaching license based on a state-approved nontraditional teacher preparation program.

c. Provide a recommendation from a regionally accredited institution, department of education, or a state's standards board indicating the completion of an approved nontraditional teacher preparation program.

d. Provide an official institutional transcript(s) to be analyzed for the requirements necessary for full Iowa licensure based on 13.9(4)*"a"*(1) to (7), 13.9(4)*"c"*(1) to (5), 13.18(2), 282—13.28(272), and 282—14.2(272).

e. Meet the recency requirements listed in 13.10(3).

f. If the applicant has fewer than three years of teaching experience, provide verification from the state licensing agency/department in the state where the nontraditional teacher preparation program was completed indicating that the applicant has successfully passed that state's mandated tests.

g. Complete a student teaching or internship experience or verify three years of teaching experience.

h. If through a transcript analysis the professional education core requirements set forth in 13.9(4)*"a"*(1) to (7), 13.9(4)*"c"*(1) to (5), and 13.18(2) and the content endorsement requirements pursuant to 282—13.28(272) may be identified by course titles, published course descriptions, and grades, then the transcripts will be reviewed to determine the applicant's eligibility for an Iowa teaching license. However, if the professional education core requirements of 13.9(4)*"a"*(1) to (7), 13.9(4)*"c"*(1) to (5), and 13.18(2) and the content endorsement requirements cannot be reviewed in this manner, a portfolio review and evaluation process will be utilized.

13.3(4) *Portfolio review and evaluation process.* An applicant whose professional education core requirements pursuant to 13.9(4)*"a"*(1) to (7), 13.9(4)*"c"*(1) to (5), and 13.18(2) or whose content endorsement requirements for special education (282—subrule 14.2(2)) could not be reviewed through transcript analysis may submit to the board a portfolio in the approved format for review and evaluation.

a. An applicant must demonstrate proficiency in seven of the nine standards in the Iowa professional education core, set forth in 13.18(4)*"a"* to *"i,"* to be eligible to receive a license.

b. An applicant must have completed at least 75 percent of the endorsement requirements through a two- or four-year institution in order for the endorsement to be included on the license. An applicant who does not have at least 75 percent of one content endorsement area as described in 282—13.28(272) completed will not be issued a license.

c. An applicant must meet with the board of educational examiners to answer any of the board's questions concerning the portfolio.

d. Any deficiencies in the professional education core as set forth in 13.18(4)*"a"* to *"i"* or in the special education content endorsement area that are identified during the portfolio review and evaluation process shall be met through coursework with course credits completed at a state-approved, regionally accredited institution or through courses approved by the executive director. Other content deficiencies may be met through coursework in a two- or four-year institution in which course credits are given.

13.3(5) *Definitions.*

"Nontraditional" means any method of teacher preparation that falls outside the traditional method of preparing teachers, that provides at least a one- or two-year sequenced program of instruction taught at regionally accredited and state-approved colleges or universities, that includes commonly recognized pedagogy classes being taught for course credit, and that requires a student teaching component.

"Proficiency," for the purposes of 13.3(4)*"a,"* means that an applicant has passed all parts of the standard.

"Recognized non-Iowa teacher preparation institution" means an institution that is state-approved and is accredited by the regional accrediting agency for the territory in which the institution is located.

[**ARC 8139B**, IAB 9/9/09, effective 10/14/09; **ARC 8610B**, IAB 3/10/10, effective 4/14/10]

282—13.4(272) Applicants from foreign institutions. An applicant for initial licensure whose preparation was completed in a foreign institution must obtain a course-by-course credential evaluation report completed by one of the board-approved credential evaluation services and then file this report with the board of educational examiners for a determination of eligibility for licensure.

282—13.5(272) Teacher licenses. A license may be issued to applicants who fulfill the general requirements set out in subrule 13.5(1) and the specific requirements set out for each license.

13.5(1) *General requirements.* The applicant shall:

a. Have a baccalaureate degree from a regionally accredited institution.

b. Have completed a state-approved teacher education program which meets the requirements of the professional education core.

c. Have completed an approved human relations component.

d. Have completed the exceptional learner component.

e. Have completed the requirements for one of the basic teaching endorsements.

f. Meet the recency requirement of subrule 13.10(3).

13.5(2) *Renewal requirements.* Renewal requirements for teacher licenses are set out in 282—Chapter 20.

282—13.6(272) Specific requirements for an initial license. An initial license valid for two years may be issued to an applicant who meets the general requirements set forth in subrule 13.5(1).

282—13.7(272) Specific requirements for a standard license. A standard license valid for five years may be issued to an applicant who:

1. Meets the general requirements set forth in subrule 13.5(1), and
2. Shows evidence of successful completion of a state-approved mentoring and induction program by meeting the Iowa teaching standards as determined by a comprehensive evaluation and two years' successful teaching experience. In lieu of completion of an Iowa state-approved mentoring and induction program, the applicant must provide evidence of three years' successful teaching experience in an Iowa nonpublic school or three years' successful teaching experience in an out-of-state K-12 educational setting.

282—13.8(272) Specific requirements for a master educator's license. A master educator's license is valid for five years and may be issued to an applicant who:

1. Is the holder of or is eligible for a standard license as set out in rule 282—13.7(272), and
2. Verifies five years of successful teaching experience, and
3. Completes one of the following options:

- Master's degree in a recognized endorsement area, or
- Master's degree in curriculum, effective teaching, or a similar degree program which has a focus on school curriculum or instruction.

282—13.9(272) Teacher intern license.

13.9(1) *Authorization.* The teacher intern is authorized to teach in grades 7 to 12.

13.9(2) *Term.* The term of the teacher intern license will be one year from the date of issuance. This license is nonrenewable. The fee for the teacher intern license is in 282—Chapter 12.

13.9(3) *Teacher intern requirements.* A teacher intern license shall be issued upon application provided that the following requirements have been met. The applicant shall:

a. Hold a baccalaureate degree with a minimum cumulative grade point average of 2.50 on a 4.0 scale from a regionally accredited institution.

b. Meet the requirements of at least one of the board's secondary (5-12) teaching endorsements listed in rule 282—13.28(272).

c. Possess a minimum of three years of postbaccalaureate work experience. An authorized official at a college or university with an approved teacher intern program will evaluate this experience.

d. Successfully complete the teacher intern program requirements listed in subrule 13.9(4) and approved by the state board of education.

e. Successfully pass a basic skills test at the level approved by the teacher education institution.

13.9(4) *Program requirements.* The teacher intern shall:

a. Complete the following requirements prior to the internship year:

(1) Learning environment/classroom management. The intern uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

(2) Instructional planning. The intern plans instruction based upon knowledge of subject matter, students, the community, curriculum goals, and state curriculum models.

(3) Instructional strategies. The intern understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

(4) Student learning. The intern understands how students learn and develop and provides learning opportunities that support intellectual, career, social, and personal development.

(5) Diverse learners. The intern understands how students differ in their approaches to learning and creates instructional opportunities that are equitable and are adaptable to diverse learners.

(6) Collaboration, ethics and relationships. The intern fosters relationships with parents, school colleagues, and organizations in the larger community to support students' learning and development.

(7) Assessment. The intern understands and uses formal and informal assessment strategies to evaluate the continuous intellectual, social, and physical development of the learner.

(8) Field experiences that provide opportunities for interaction with students in an environment that supports learning in context. These experiences shall total at least 50 contact hours in the field prior to the beginning of the academic year of the candidate's initial employment as a teacher intern.

b. Complete four semester hours of a teacher intern seminar during the teacher internship year to include support and extension of coursework from the teacher intern program.

c. Complete the coursework and competencies in the following areas:

(1) Foundations, reflection, and professional development. The intern continually evaluates the effects of the practitioner's choices and actions on students, parents, and other professionals in the learning community and actively seeks out opportunities to grow professionally.

(2) Communication. The intern uses knowledge of effective verbal, nonverbal, and media communication techniques, and other forms of symbolic representation, to foster active inquiry and collaboration and to support interaction in the classroom.

(3) Exceptional learner program, which must include preparation that contributes to the education of individuals with disabilities and the gifted and talented.

(4) Preparation in the integration of reading strategies into the content area.

(5) Computer technology related to instruction.

(6) An advanced study of the items set forth in 13.9(4)*"a"*(1) to (7) above.

13.9(5) *Local school district requirements.* The local school district shall:

a. Provide an offer of employment to an individual who has been evaluated by a college or university for eligibility or acceptance in the teacher intern program.

b. Participate in a mentoring and induction program.

c. Provide a district mentor for the teacher intern.

d. Provide other support and supervision, as needed, to maximize the opportunity for the teacher intern to succeed.

e. Not overload the teacher intern with extracurricular duties not directly related to the teacher intern's teaching assignment.

f. Provide evidence to the board from a licensed evaluator that the teacher intern is participating in a mentoring and induction program.

g. At the board's request, provide information including, but not limited to, the teacher intern selection and preparation program, institutional support, local school district mentor, and local school district support.

13.9(6) *Requirements to convert the teacher intern license to the initial license.*

a. An initial license shall be issued upon application provided that the teacher intern has met all of the following requirements:

(1) Successful completion of the coursework and competencies in the teacher intern program approved by the state board of education.

(2) Verification from a licensed evaluator that the teacher intern served successfully for a minimum of 160 days.

(3) Verification from a licensed evaluator that the teacher intern is participating in a mentoring and induction program and is being assessed on the Iowa teaching standards.

(4) Recommendation by a college or university offering an approved teacher intern program that the individual is eligible for an initial license.

(5) At the board's request, the teacher intern shall provide to the board information including, but not limited to, the teacher intern selection and preparation program, institutional support, local school district mentor, and local school district support.

b. The teacher intern year will count as one of the years that is needed for the teacher intern to convert the initial license to the standard license if the conditions listed in paragraph 13.9(6)*"a"* have been met.

13.9(7) *Requirements to obtain the initial license if the teacher intern does not complete the internship year.*

a. An initial license shall be issued upon application provided that the teacher intern has met the requirements for one of the following options:

(1) Option #1:

1. Successful completion of the coursework and competencies in the teacher intern program approved by the state board of education; and

2. Verification by a college or university that the teacher intern successfully completed the college's or university's state-approved student teaching requirements; and

3. Recommendation by a college or university offering an approved teacher intern program that the individual is eligible for an initial license.

(2) Option #2:

1. Successful completion of the coursework and competencies in the teacher intern program approved by the state board of education; and

2. Verification by the approved teacher intern program that the teacher intern successfully completed 40 days of paid substitute teaching; and

3. Verification by the teacher intern program that the teacher intern successfully completed 40 days of co-teaching; and

4. Recommendation by the approved teacher intern program that the individual is eligible for an initial license.

b. At the board's request, the teacher intern shall provide to the board information including, but not limited to, the teacher intern selection and preparation program, institutional support, local school district mentor, and local school district support.

13.9(8) *Requirements to extend the teacher intern license if the teacher intern does not complete all of the education coursework during the term of the teacher intern license.*

a. A one-year extension of the teacher intern license may be issued upon application provided that the teacher intern has met both of the following requirements:

(1) Successful completion of 160 days of teaching experience during the teacher internship.

(2) Verification by the recommending official at the approved teacher intern program that the teacher intern has not completed all of the coursework required for the initial license.

b. Only one year of teaching experience during the term of the teacher intern license or the extension of a teacher intern license may be used to convert the teacher intern license to a standard teaching license.

[**ARC 8688B**, IAB 4/7/10, effective 5/12/10; **ARC 9925B**, IAB 12/14/11, effective 1/18/12]

282—13.10(272) Specific requirements for a Class A license. A nonrenewable Class A license valid for one year may be issued to an individual who has completed a teacher education program under any one of the following conditions:

13.10(1) *Professional core requirements.* The individual has not completed all of the required courses in the professional core, 13.18(4)*"a"* through *"j."*

13.10(2) *Human relations component.* The individual has not completed an approved human relations component.

13.10(3) *Recency.* The individual meets the requirements for a valid license, but has had fewer than 160 days of teaching experience during the five-year period immediately preceding the date of application or has not completed six semester hours of college credit from a recognized institution within the five-year period. To obtain the desired license, the applicant must complete recent credits and, where recent credits are required, these credits shall be taken in professional education or in the applicant's endorsement area(s).

13.10(4) *Degree not granted until next regular commencement.* Rescinded IAB 9/9/09, effective 10/14/09.

13.10(5) *Based on an expired Iowa certificate or license, exclusive of a Class A or Class B license.*

a. The holder of an expired license, exclusive of a Class A or Class B license, shall be eligible to receive a Class A license upon application. This license shall be endorsed for the type of service authorized by the expired license on which it is based.

b. The holder of an expired license who is currently under contract with an Iowa educational unit (area education agency/local education agency/local school district) and who does not meet the renewal requirements for the license held shall be required to secure the signature of the superintendent or designee before the license will be issued.

13.10(6) *Based on a mentoring and induction program.* An applicant may be eligible for a Class A license if the school district, after conducting a comprehensive evaluation, recommends and verifies that the applicant shall participate in the mentoring program for a third year.

13.10(7) *Based on an administrative decision.* The executive director is authorized to issue a Class A license to an applicant whose services are needed to fill positions in unique need circumstances.

[**ARC 7987B**, IAB 7/29/09, effective 9/2/09; **ARC 8134B**, IAB 9/9/09, effective 10/14/09; **ARC 8957B**, IAB 7/28/10, effective 9/1/10]

282—13.11(272) Specific requirements for a Class B license. A Class B license, which is valid for two years and which is nonrenewable, may be issued to an individual under the following conditions:

13.11(1) *Endorsement in progress.* The individual has a valid initial, standard, master educator, permanent professional, Class A (one-year extension of an initial, standard, or master educator), exchange, or professional service license and one or more endorsements but is seeking to obtain some other endorsement. A Class B license may be issued if requested by an employer and if the individual seeking to obtain some other endorsement has completed at least two-thirds of the requirements, or one-half of the content requirements in a state-designated shortage area, leading to completion of all requirements for the endorsement. A Class B license may not be issued for the driver's education endorsement.

13.11(2) *Program of study for special education endorsement.* The college or university must outline the program of study necessary to meet the special education endorsement requirements. This program of study must be attached to the application.

13.11(3) *Request for exception.* A school district administrator may file a written request with the board for an exception to the minimum content requirements on the basis of documented need and benefit to the instructional program. The board will review the request and provide a written decision either approving or denying the request.

13.11(4) *Provisional occupational license.* If an individual is eligible for a provisional occupational license but has not met all of the experience requirements, a Class B license may be issued while the individual earns the necessary experience.

13.11(5) *Expiration.* This license will expire on June 30 of the fiscal year in which it was issued plus one year.
[**ARC 7987B**, IAB 7/29/09, effective 9/2/09; **ARC 8133B**, IAB 9/9/09, effective 10/14/09; **ARC 9207B**, IAB 11/3/10, effective 12/8/10; **ARC 9573B**, IAB 6/29/11, effective 8/3/11]

282—13.12(272) Specific requirements for a Class C license. Rescinded IAB 7/29/09, effective 9/2/09.

282—13.13(272) Specific requirements for a Class D occupational license. Rescinded IAB 7/29/09, effective 9/2/09.

282—13.14(272) Specific requirements for a Class E license. A nonrenewable license valid for one year may be issued to an individual as follows:

13.14(1) *Expired license.* Based on an expired Class A, Class B, or teacher exchange license, the holder of the expired license shall be eligible to receive a Class E license upon application and submission of all required materials.

13.14(2) *Application.* The application process will require transcripts of coursework completed during the term of the expired license, a program of study indicating the coursework necessary to obtain full licensure, and registration for coursework to be completed during the term of the Class E license. The Class E license will be denied if the applicant has not completed any coursework during the term of the Class A or Class B license unless extenuating circumstances are verified.
[**ARC 7987B**, IAB 7/29/09, effective 9/2/09]

282—13.15(272) Specific requirements for a Class G license. A nonrenewable Class G license valid for one year may be issued to an individual who must complete a school guidance counseling practicum or internship in an approved program in preparation for the school guidance counselor endorsement. The Class G license may be issued under the following limited conditions:

1. Verification of a baccalaureate degree from a regionally accredited institution.
2. Verification from the institution that the individual is admitted and enrolled in an approved school guidance counseling program.
3. Verification that the individual has completed the coursework and competencies required prior to the practicum or internship.
4. Written documentation of the requirements listed in "1" to "3" above, provided by the official at the institution where the individual is completing the approved school guidance counseling program and forwarded to the Iowa board of educational examiners with the application form for licensure.

282—13.16(272) Specific requirements for a substitute teacher's license.

13.16(1) *Substitute teacher requirements.* A substitute teacher's license may be issued to an individual who:

a. Has been the holder of, or presently holds, a license in Iowa; or holds or held a regular teacher's license or certificate in another state, exclusive of temporary, emergency, or substitute certificate or license, or a certificate based on an alternative certification program; or

b. Has successfully completed all requirements of an approved teacher education program, but did not apply for an Iowa teacher's license at the time of completion of the approved program.

13.16(2) *Validity.* A substitute license is valid for five years and for not more than 90 days of teaching in one assignment during any one school year. A school district administrator may file a written request with the board for an extension of the 90-day limit in one assignment on the basis of documented need and benefit to the instructional program. The board will review the request and provide a written decision either approving or denying the request.

13.16(3) *Authorization.* The holder of a substitute license is authorized to teach in any school system in any position in which a regularly licensed teacher was employed to begin the school year except in the driver's education classroom. In addition to the authority inherent in the initial, standard, master educator, professional administrator, two-year exchange, and permanent professional licenses and the

endorsement(s) held, the holder of one of these regular licenses may substitute on the same basis as the holder of a substitute license while the regular license is in effect.
[**ARC 9205B**, IAB 11/3/10, effective 12/8/10; **ARC 9206B**, IAB 11/3/10, effective 12/8/10]

282—13.17(272) Specific requirements for exchange licenses. An applicant seeking Iowa licensure who completes the teacher preparation program from a recognized non-Iowa institution shall verify the requirements of subrules 13.18(4) and 13.18(5) through traditional course-based preparation program and transcript review. A recognized non-Iowa teacher preparation institution is one that is state-approved and is accredited by the regional accrediting agency for the territory in which the institution is located. Applicants for nontraditional exchange licenses are not required to have received their preparation through regionally approved teacher education programs.

13.17(1) *One-year teacher exchange license.*

a. For an applicant applying under 13.3(2), a one-year nonrenewable exchange license may be issued to the applicant under the following conditions:

(1) The applicant has completed a state-approved, regionally accredited teacher education program; and

(2) The applicant has the recommendation for the specific license and endorsement(s) from the designated recommending official at the recognized non-Iowa institution where the preparation was completed; and

(3) The applicant holds and submits a copy of a valid and current certificate or license in the state in which the preparation was completed or in which the applicant is currently teaching, exclusive of a temporary, emergency or substitute license or certificate;

1. If the applicant's out-of-state license is expired, a one-year teacher exchange license may be issued and the lack of a valid and current out-of-state license will be listed as a deficiency;

2. If the applicant submits verification that the applicant has applied for and will receive the applicant's first teaching license and is waiting for the processing or printing of a valid and current out-of-state license, a regional exchange license may be issued and the lack of a valid and current out-of-state license will be listed as a deficiency; and

(4) If the applicant has fewer than three years of teaching experience or is being recommended for a K-6 elementary education endorsement, the applicant must verify successful completion of mandated tests in the state in which the applicant is currently licensed; and

(5) Each exchange license shall be limited to the area(s) and level(s) of instruction as determined by an analysis of the application, the transcripts and the license or certificate held in the state in which the basic preparation for licensure was completed or of the application and the credential evaluation report. The applicant must have completed at least 75 percent of the endorsement requirements through a two- or four-year institution in order for the endorsement to be included on the exchange license; and

(6) The applicant is not subject to any pending disciplinary proceedings in any state or country; and

(7) The applicant complies with all requirements with regard to application processes and payment of licensure fees.

b. After the term of the exchange license has expired, the applicant may apply to be fully licensed if the applicant has completed all requirements and is eligible for full licensure.

c. If the lack of a valid and current out-of-state license was listed as a deficiency, the one-year teacher exchange license shall not be converted or extended until a valid and current out-of-state license is presented to remove the deficiency.

13.17(2) *Two-year nontraditional exchange license.* For an applicant applying under 13.3(3) and 13.3(4), a two-year nontraditional teacher exchange license may be issued to the applicant from state-approved preparation programs, under the following conditions:

a. The applicant has met the requirements of 13.3(4)*"a"* and *"b."*

b. The applicant has met the requirements of 13.17(1)*"a"*(3) through (7).

c. To convert the two-year nontraditional exchange license, the applicant must meet all deficiencies as well as meet the Iowa teaching standards as determined by a comprehensive evaluation by a licensed evaluator, and the applicant shall have two years of successful teaching experience in

Iowa. The evaluator may recommend extending the license for a third year to meet Iowa teaching standards.

d. The license may be extended to meet the requirements for two years of successful teaching in Iowa with proof of employment.

13.17(3) *International teacher exchange license.*

a. A nonrenewable international exchange license may be issued to an applicant under the following conditions:

(1) The applicant has completed a teacher education program in another country; and

(2) The applicant is not subject to any pending disciplinary proceedings in any state or country; and

(3) The applicant complies with all requirements with regard to application processes and payment of licensure fees; and

(4) The applicant is a participant in a teacher exchange program administered through the Iowa department of education.

b. Each exchange license shall be limited to the area(s) and level(s) of instruction as determined by an analysis of the application and the credential evaluation report.

c. This license shall not exceed three years.

d. After the term of the exchange license has expired, the applicant may apply to be fully licensed if the applicant has completed all requirements and is eligible for full licensure.

[**ARC 8138B**, IAB 9/9/09, effective 10/14/09; **ARC 8604B**, IAB 3/10/10, effective 4/14/10; **ARC 9072B**, IAB 9/8/10, effective 10/13/10; **ARC 9840B**, IAB 11/2/11, effective 12/7/11]

282—13.18(272) General requirements for an original teaching subject area endorsement. Following are the general requirements for the issuance of a license with an endorsement.

13.18(1) Baccalaureate degree from a regionally accredited institution.

13.18(2) Completion of an approved human relations component.

13.18(3) Completion of the exceptional learner program, which must include preparation that contributes to the education of individuals with disabilities and the gifted and talented.

13.18(4) Professional education core. Completed coursework or evidence of competency in:

a. Student learning. The practitioner understands how students learn and develop, and provides learning opportunities that support intellectual, career, social and personal development.

b. Diverse learners. The practitioner understands how students differ in their approaches to learning and creates instructional opportunities that are equitable and are adaptable to diverse learners.

c. Instructional planning. The practitioner plans instruction based upon knowledge of subject matter, students, the community, curriculum goals, and state curriculum models.

d. Instructional strategies. The practitioner understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

e. Learning environment/classroom management. The practitioner uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

f. Communication. The practitioner uses knowledge of effective verbal, nonverbal, and media communication techniques, and other forms of symbolic representation, to foster active inquiry, collaboration, and support interaction in the classroom.

g. Assessment. The practitioner understands and uses formal and informal assessment strategies to evaluate the continuous intellectual, social, and physical development of the learner.

h. Foundations, reflection and professional development. The practitioner continually evaluates the effects of the practitioner's choices and actions on students, parents, and other professionals in the learning community, and actively seeks out opportunities to grow professionally.

i. Collaboration, ethics and relationships. The practitioner fosters relationships with parents, school colleagues, and organizations in the larger community to support students' learning and development.

j. Computer technology related to instruction.

k. Completion of pre-student teaching field-based experiences.

l. Methods of teaching with an emphasis on the subject and grade level endorsement desired.

m. Student teaching in the subject area and grade level endorsement desired.

n. Preparation in reading programs, including reading recovery, and integration of reading strategies into content area methods coursework.

13.18(5) Content/subject matter specialization. The practitioner understands the central concepts, tools of inquiry, and structure of the discipline(s) the practitioner teaches and creates learning experiences that make these aspects of subject matter meaningful for students. This is evidenced by completion of a 30-semester-hour teaching major which must minimally include the requirements for at least one of the basic endorsement areas, special education teaching endorsements, or secondary level occupational endorsements.

282—13.19(272) NCATE-accredited programs. Rescinded IAB 6/17/09, effective 7/22/09.

282—13.20 Reserved.

282—13.21(272) Human relations requirements for practitioner licensure. Preparation in human relations shall be included in programs leading to teacher licensure. Human relations study shall include interpersonal and intergroup relations and shall contribute to the development of sensitivity to and understanding of the values, beliefs, lifestyles and attitudes of individuals and the diverse groups found in a pluralistic society.

13.21(1) Beginning on or after August 31, 1980, each applicant for an initial practitioner's license shall have completed the human relations requirement.

13.21(2) On or after August 31, 1980, each applicant for the renewal of a practitioner's license shall have completed an approved human relations requirement.

13.21(3) Credit for the human relations requirement shall be given for licensed persons who can give evidence that they have completed a human relations program which meets board of educational examiners criteria (see rule 282—13.24(272)).

282—13.22(272) Development of human relations components. Human relations components shall be developed by teacher preparation institutions. In-service human relations components may also be developed by educational agencies other than teacher preparation institutions, as approved by the board of educational examiners.

13.22(1) *Advisory committee.* Education agencies developing human relations components shall give evidence that in the development of their programs they were assisted by an advisory committee. The advisory committee shall consist of equal representation of various minority and majority groups.

13.22(2) *Standards for approved components.* Human relations components will be approved by the board of educational examiners upon submission of evidence that the components are designed to develop the ability of participants to:

a. Be aware of and understand the values, lifestyles, history, and contributions of various identifiable subgroups in our society.

b. Recognize and deal with dehumanizing biases such as sexism, racism, prejudice, and discrimination and become aware of the impact that such biases have on interpersonal relations.

c. Translate knowledge of human relations into attitudes, skills, and techniques which will result in favorable learning experiences for students.

d. Recognize the ways in which dehumanizing biases may be reflected in instructional materials.

e. Respect human diversity and the rights of each individual.

f. Relate effectively to other individuals and various subgroups other than one's own.

13.22(3) *Evaluation.* Educational agencies providing the human relations components shall indicate the means to be utilized for evaluation.

282—13.23 to **13.25** Reserved.

282—13.26(272) Requirements for elementary endorsements.

13.26(1) *Teacher—prekindergarten-kindergarten.*

a. Authorization. The holder of this endorsement is authorized to teach at the prekindergarten/kindergarten level.

b. Program requirements.

(1) Degree—baccalaureate, and

(2) Completion of an approved human relations program, and

(3) Completion of the professional education core. See subrule 13.18(3).

c. Content.

(1) Human growth and development: infancy and early childhood, unless completed as part of the professional education core. See subrule 13.18(4).

(2) Curriculum development and methodology for young children.

(3) Child-family-school-community relationships (community agencies).

(4) Guidance of young children three to six years of age.

(5) Organization of prekindergarten-kindergarten programs.

(6) Child and family nutrition.

(7) Language development and learning.

(8) Kindergarten: programs and curriculum development.

13.26(2) *Teacher—prekindergarten through grade three.*

a. Authorization. The holder of this endorsement is authorized to teach children from birth through grade three.

b. Program requirements.

(1) Degree—baccalaureate.

(2) Completion of an approved human relations program.

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

(4) Highly qualified teacher (HQT) status. Applicants from non-Iowa institutions who have completed the requirements for this endorsement must verify their HQT status. The board shall determine the test and the minimum passing score for HQT status. Verification must be provided through one of the following:

1. Written verification from the department of education in the state in which the applicant completed the elementary teacher preparation program that the applicant has achieved HQT status in that state; or

2. Written verification from the department of education in the state where the applicant is currently teaching that the applicant has achieved HQT status in that state; or

3. Submission of the official test score report indicating the applicant has met the qualifying score for licensure in the state in which the applicant completed the elementary teacher preparation program; or

4. Obtaining the qualifying score set by the Iowa board of educational examiners if the applicant has not been teaching within the last five years and completion of a teacher preparation program prior to enactment of the federal highly qualified teacher legislation (June 2006). This option may also be utilized by applicants from outside the United States.

5. For applicants who have completed the requirements for one of the Iowa elementary endorsements, verification of HQT status by meeting the minimum score set by the Iowa board of educational examiners if the applicant has not been teaching within the last five years and completion of a teacher preparation program prior to enactment of the federal highly qualified teacher legislation (June 2006). This option may also be utilized by applicants who have been teaching outside the United States.

c. Content.

(1) Child growth and development with emphasis on cognitive, language, physical, social, and emotional development, both typical and atypical, for infants and toddlers, preprimary, and primary school children (grades one through three), unless combined as part of the professional education core. See subrule 13.18(4) of the licensure rules for the professional core.

(2) Historical, philosophical, and social foundations of early childhood education.

(3) Developmentally appropriate curriculum with emphasis on integrated multicultural and nonsexist content including language, mathematics, science, social studies, health, safety, nutrition, visual and expressive arts, social skills, higher-thinking skills, and developmentally appropriate methodology, including adaptations for individual needs, for infants and toddlers, preprimary, and primary school children.

(4) Characteristics of play and creativity, and their contributions to the cognitive, language, physical, social and emotional development and learning of infants and toddlers, preprimary, and primary school children.

(5) Classroom organization and individual interactions to create positive learning environments for infants and toddlers, preprimary, and primary school children based on child development theory emphasizing guidance techniques.

(6) Observation and application of developmentally appropriate assessments for infants and toddlers, preprimary, and primary school children recognizing, referring, and making adaptations for children who are at risk or who have exceptional educational needs and talents.

(7) Home-school-community relationships and interactions designed to promote and support parent, family and community involvement, and interagency collaboration.

(8) Family systems, cultural diversity, and factors which place families at risk.

(9) Child and family health and nutrition.

(10) Advocacy, legislation, and public policy as they affect children and families.

(11) Administration of child care programs to include staff and program development and supervision and evaluation of support staff.

(12) Pre-student teaching field experience with three age levels in infant and toddler, preprimary, and primary programs, with no less than 100 clock hours, and in different settings, such as rural and urban, socioeconomic status, cultural diversity, program types, and program sponsorship.

(13) Student teaching experiences with two different age levels, one before kindergarten and one from kindergarten through grade three.

13.26(3) *Teacher—prekindergarten through grade three, including special education.*

a. Authorization. The holder of this endorsement is authorized to teach children from birth through grade three.

b. Program requirements.

(1) Degree—baccalaureate, and

(2) Completion of an approved human relations program, and

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

(4) Highly qualified teacher (HQT) status. Applicants from non-Iowa institutions who have completed the requirements for this endorsement must verify their HQT status. The board shall determine the test and the minimum passing score for HQT status. Verification must be provided through one of the following:

1. Written verification from the department of education in the state in which the applicant completed the elementary teacher preparation program that the applicant has achieved HQT status in that state; or

2. Written verification from the department of education in the state where the applicant is currently teaching that the applicant has achieved HQT status in that state; or

3. Submission of the official test score report indicating the applicant has met the qualifying score for licensure in the state in which the applicant completed the elementary teacher preparation program; or

4. Obtaining the qualifying score set by the Iowa board of educational examiners if the applicant has not been teaching within the last five years and completion of a teacher preparation program prior to enactment of the federal highly qualified teacher legislation (June 2006). This option may also be utilized by applicants from outside the United States.

5. For applicants who have completed the requirements for one of the Iowa elementary endorsements, verification of HQT status by meeting the minimum score set by the Iowa board of educational examiners if the applicant has not been teaching within the last five years and completion of

a teacher preparation program prior to enactment of the federal highly qualified teacher legislation (June 2006). This option may also be utilized by applicants who have been teaching outside the United States.

c. Content.

(1) Child growth and development.

1. Understand the nature of child growth and development for infants and toddlers (birth through age 2), preprimary (age 3 through age 5) and primary school children (age 6 through age 8), both typical and atypical, in areas of cognition, language development, physical motor, social-emotional, aesthetics, and adaptive behavior.

2. Understand individual differences in development and learning including risk factors, developmental variations and developmental patterns of specific disabilities and special abilities.

3. Recognize that children are best understood in the contexts of family, culture and society and that cultural and linguistic diversity influences development and learning.

(2) Developmentally appropriate learning environment and curriculum implementation.

1. Establish learning environments with social support, from the teacher and from other students, for all children to meet their optimal potential, with a climate characterized by mutual respect, encouraging and valuing the efforts of all regardless of proficiency.

2. Appropriately use informal and formal assessment to monitor development of children and to plan and evaluate curriculum and teaching practices to meet individual needs of children and families.

3. Plan, implement, and continuously evaluate developmentally and individually appropriate curriculum goals, content, and teaching practices for infants, toddlers, preprimary and primary children based on the needs and interests of individual children, their families and community.

4. Use both child-initiated and teacher-directed instructional methods, including strategies such as small and large group projects, unstructured and structured play, systematic instruction, group discussion and cooperative decision making.

5. Develop and implement integrated learning experiences for home-, center- and school-based environments for infants, toddlers, preprimary and primary children.

6. Develop and implement integrated learning experiences that facilitate cognition, communication, social and physical development of infants and toddlers within the context of parent-child and caregiver-child relationships.

7. Develop and implement learning experiences for preprimary and primary children with focus on multicultural and nonsexist content that includes development of responsibility, aesthetic and artistic development, physical development and well-being, cognitive development, and emotional and social development.

8. Develop and implement learning experiences for infants, toddlers, preprimary, and primary children with a focus on language, mathematics, science, social studies, visual and expressive arts, social skills, higher-thinking skills, and developmentally appropriate methodology.

9. Develop adaptations and accommodations for infants, toddlers, preprimary, and primary children to meet their individual needs.

10. Adapt materials, equipment, the environment, programs and use of human resources to meet social, cognitive, physical motor, communication, and medical needs of children and diverse learning needs.

(3) Health, safety and nutrition.

1. Design and implement physically and psychologically safe and healthy indoor and outdoor environments to promote development and learning.

2. Promote nutritional practices that support cognitive, social, cultural and physical development of young children.

3. Implement appropriate appraisal and management of health concerns of young children including procedures for children with special health care needs.

4. Recognize signs of emotional distress, physical and mental abuse and neglect in young children and understand mandatory reporting procedures.

5. Demonstrate proficiency in infant-child cardiopulmonary resuscitation, emergency procedures and first aid.

(4) Family and community collaboration.

1. Apply theories and knowledge of dynamic roles and relationships within and between families, schools, and communities.

2. Assist families in identifying resources, priorities, and concerns in relation to the child's development.

3. Link families, based on identified needs, priorities and concerns, with a variety of resources.

4. Use communication, problem-solving and help-giving skills in collaboration with families and other professionals to support the development, learning and well-being of young children.

5. Participate as an effective member of a team with other professionals and families to develop and implement learning plans and environments for young children.

(5) Professionalism.

1. Understand legislation and public policy that affect all young children, with and without disabilities, and their families.

2. Understand legal aspects, historical, philosophical, and social foundations of early childhood education and special education.

3. Understand principles of administration, organization and operation of programs for children from birth to age 8 and their families, including staff and program development, supervision and evaluation of staff, and continuing improvement of programs and services.

4. Identify current trends and issues of the profession to inform and improve practices and advocate for quality programs for young children and their families.

5. Adhere to professional and ethical codes.

6. Engage in reflective inquiry and demonstration of professional self-knowledge.

(6) Pre-student teaching field experiences. Complete 100 clock hours of pre-student teaching field experience with three age levels in infant and toddler, preprimary, and primary programs and in different settings, such as rural and urban, encompassing differing socioeconomic status, ability levels, cultural and linguistic diversity and program types and sponsorship.

(7) Student teaching. Complete a supervised student teaching experience of a total of at least 12 weeks in at least two different classrooms which include children with and without disabilities in two of three age levels: infant and toddler, preprimary, and primary.

13.26(4) *Teacher—elementary classroom.*

a. Authorization. The holder of this endorsement is authorized to teach in kindergarten and grades one through six.

b. Program requirements.

(1) Degree—baccalaureate, and

(2) Completion of an approved human relations component, and

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

(4) Highly qualified teacher (HQT) status. Applicants from non-Iowa institutions who have completed the requirements for this endorsement must verify their HQT status. The board shall determine the test and the minimum passing score for HQT status. Verification must be provided through one of the following:

1. Written verification from the department of education in the state in which the applicant completed the elementary teacher preparation program that the applicant has achieved HQT status in that state; or

2. Written verification from the department of education in the state where the applicant is currently teaching that the applicant has achieved HQT status in that state; or

3. Submission of the official test score report indicating the applicant has met the qualifying score for licensure in the state in which the applicant completed the elementary teacher preparation program; or

4. Obtaining the qualifying score set by the Iowa board of educational examiners if the applicant has not been teaching within the last five years and completion of a teacher preparation program prior to enactment of the federal highly qualified teacher legislation (June 2006). This option may also be utilized by applicants from outside the United States.

5. For applicants who have completed the requirements for one of the Iowa elementary endorsements, verification of HQT status by meeting the minimum score set by the Iowa board of educational examiners if the applicant has not been teaching within the last five years and completion of a teacher preparation program prior to enactment of the federal highly qualified teacher legislation (June 2006). This option may also be utilized by applicants who have been teaching outside the United States.

c. Content.

(1) Child growth and development with emphasis on the emotional, physical and mental characteristics of elementary age children, unless completed as part of the professional education core. See subrule 13.18(4).

(2) Methods and materials of teaching elementary language arts.

(3) Methods and materials of teaching elementary reading.

(4) Elementary curriculum (methods and materials).

(5) Methods and materials of teaching elementary mathematics.

(6) Methods and materials of teaching elementary science.

(7) Children's literature.

(8) Methods and materials of teaching elementary social studies.

(9) Methods and materials in two of the following areas:

1. Methods and materials of teaching elementary health.
2. Methods and materials of teaching elementary physical education.
3. Methods and materials of teaching elementary art.
4. Methods and materials of teaching elementary music.

(10) Pre-student teaching field experience in at least two different grades.

(11) A field of specialization in a single discipline or a formal interdisciplinary program of at least 12 semester hours.

13.26(5) *Teacher—elementary classroom.* Effective September 1, 2015, the following requirements apply to persons who wish to teach in the elementary classroom:

a. Authorization. The holder of this endorsement is authorized to teach in kindergarten and grades one through six.

b. Program requirements.

(1) Degree—baccalaureate, and

(2) Completion of an approved human relations component, and

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

c. Content.

(1) Child growth and development with emphasis on the emotional, physical and mental characteristics of elementary age children, unless completed as part of the professional education core. See subrule 13.18(4).

(2) At least 9 semester hours in literacy which must include:

1. Content:

- Children's literature;
- Oral and written communication skills for the twenty-first century.

2. Methods:

- Assessment, diagnosis and evaluation of student learning in literacy;
- Integration of the language arts (to include reading, writing, speaking, viewing, and listening);
- Integration of technology in teaching and student learning in literacy;
- Current best-practice, research-based approaches of literacy instruction;
- Classroom management as it applies to literacy methods;
- Pre-student teaching clinical experience in teaching literacy.

(3) At least 9 semester hours in mathematics which must include:

1. Content:

- Numbers and operations;
- Algebra/number patterns;
- Geometry;

- Measurement;
- Data analysis/probability.

2. Methods:

- Assessment, diagnosis and evaluation of student learning in mathematics;
- Current best-practice, research-based instructional methods in mathematical processes (to include problem solving; reasoning; communication; the ability to recognize, make and apply connections; integration of manipulatives; the ability to construct and to apply multiple connected representations; and the application of content to real world experiences);
- Integration of technology in teaching and student learning in mathematics;
- Classroom management as it applies to mathematics methods;
- Pre-student teaching clinical experience in teaching mathematics.

(4) At least 9 semester hours in social sciences which must include:

1. Content:

- History;
- Geography;
- Political science/civic literacy;
- Economics;
- Behavioral sciences.

2. Methods:

- Current best-practice, research-based approaches to the teaching and learning of social sciences;
- Integration of technology in teaching and student learning in social sciences;
- Classroom management as it applies to social science methods.

(5) At least 9 semester hours in science which must include:

1. Content:

- Physical science;
- Earth/space science;
- Life science.

2. Methods:

- Current best-practice, research-based methods of inquiry-based teaching and learning of science;
- Integration of technology in teaching and student learning in science;
- Classroom management as it applies to science methods.

(6) At least 3 semester hours to include all of the following:

1. Methods of teaching elementary physical education, health, and wellness;
2. Methods of teaching visual arts for the elementary classroom;
3. Methods of teaching performance arts for the elementary classroom.

(7) Pre-student teaching field experience in at least two different grade levels to include one primary and one intermediate placement.

(8) A field of specialization in a single discipline or a formal interdisciplinary program of at least 12 semester hours.

[**ARC 8400B**, IAB 12/16/09, effective 1/20/10; **ARC 8401B**, IAB 12/16/09, effective 1/20/10; **ARC 8402B**, IAB 12/16/09, effective 1/20/10; **ARC 8607B**, IAB 3/10/10, effective 4/14/10]

282—13.27(272) Requirements for middle school endorsements.

13.27(1) *Authorization.* The holder of this endorsement is authorized to teach in the two concentration areas in which the specific requirements have been completed as well as in other subject areas in grades five through eight which are not the core content areas. The holder is not authorized to teach art, industrial arts, music, reading, physical education and special education.

13.27(2) *Program requirements.*

a. Be the holder of a currently valid Iowa teacher's license with either the general elementary endorsement or one of the subject matter secondary level endorsements set out in rule 282—13.28(272) or 282—subrules 17.1(1) and 17.1(3).

b. A minimum of 9 semester hours of required coursework in the following:

(1) Coursework in the growth and development of the middle school age child, specifically addressing the social, emotional, physical and cognitive characteristics and needs of middle school age children in addition to related studies completed as part of the professional education core in subrule 13.18(4).

(2) Coursework in middle school design, curriculum, instruction, and assessment including, but not limited to, interdisciplinary instruction, teaming, and differentiated instruction in addition to related studies completed as part of the professional education core in subrule 13.18(4).

(3) Coursework to prepare middle school teachers in literacy (reading, writing, listening and speaking) strategies for students in grades five through eight and in methods to include these strategies throughout the curriculum.

c. Thirty hours of middle school field experiences included in the coursework requirements listed in 13.27(2)*"b"*(1) to (3).

13.27(3) *Concentration areas.* To obtain this endorsement, the applicant must complete the coursework requirements in two of the following content areas:

a. Social studies concentration. The social studies concentration requires 12 semester hours of coursework in social studies to include coursework in United States history, world history, government and geography.

b. Mathematics concentration. The mathematics concentration requires 12 semester hours in mathematics to include coursework in algebra.

c. Science concentration. The science concentration requires 12 semester hours in science to include coursework in life science, earth science, and physical science.

d. Language arts concentration. The language arts concentration requires 12 semester hours in language arts to include coursework in composition, language usage, speech, young adult literature, and literature across cultures.

282—13.28(272) Minimum content requirements for teaching endorsements.

13.28(1) *Agriculture.* 5-12. Completion of 24 semester credit hours in agriculture and agriculture education to include:

a. Foundations of vocational and career education.

b. Planning and implementing courses and curriculum.

c. Methods and techniques of instruction to include evaluation of programs and students.

d. Coordination of cooperative education programs.

e. Coursework in each of the following areas and at least three semester credit hours in five of the following areas:

(1) Agribusiness systems.

(2) Power, structural, and technical systems.

(3) Plant systems.

(4) Animal systems.

(5) Natural resources systems.

(6) Environmental service systems.

(7) Food products and processing systems.

13.28(2) *Art.* K-8 or 5-12. Completion of 24 semester hours in art to include coursework in art history, studio art, and two- and three-dimensional art.

13.28(3) *Business—all.* 5-12. Completion of 30 semester hours in business to include 6 semester hours in accounting, 3 semester hours in business law to include contract law, 3 semester hours in computer and technical applications in business, 6 semester hours in marketing to include consumer studies, 3 semester hours in management, 6 semester hours in economics, and 3 semester hours in business communications to include formatting, language usage, and oral presentation. Coursework in entrepreneurship and in financial literacy may be a part of, or in addition to, the coursework listed above. Individuals who were licensed in Iowa prior to October 1, 1988, and were allowed to teach marketing without completing the endorsement requirements must complete the endorsement requirements by July

1, 2010, in order to teach or continue to teach marketing. A waiver provision is available through the board of educational examiners for individuals who have been successfully teaching marketing.

13.28(4) *Driver education.* 5-12. Completion of 9 semester hours in driver education to include coursework in accident prevention that includes drug and alcohol abuse; vehicle safety; and behind-the-wheel driving.

13.28(5) *English/language arts.*

a. K-8. Completion of 24 semester hours in English and language arts to include coursework in oral communication, written communication, language development, reading, children's literature, creative drama or oral interpretation of literature, and American literature.

b. 5-12. Completion of 24 semester hours in English to include coursework in oral communication, written communication, language development, reading, American literature, English literature and adolescent literature.

13.28(6) *Language arts.* 5-12. Completion of 40 semester hours in language arts to include coursework in the following areas:

a. Written communication.

(1) Develops a wide range of strategies and appropriately uses writing process elements (e.g., brainstorming, free-writing, first draft, group response, continued drafting, editing, and self-reflection) to communicate with different audiences for a variety of purposes.

(2) Develops knowledge of language structure (e.g., grammar), language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique, and discuss print and nonprint texts.

b. Oral communication.

(1) Understands oral language, listening, and nonverbal communication skills; knows how to analyze communication interactions; and applies related knowledge and skills to teach students to become competent communicators in varied contexts.

(2) Understands the communication process and related theories, knows the purpose and function of communication and understands how to apply this knowledge to teach students to make appropriate and effective choices as senders and receivers of messages in varied contexts.

c. Language development.

(1) Understands inclusive and appropriate language, patterns and dialects across cultures, ethnic groups, geographic regions and social roles.

(2) Develops strategies to improve competency in the English language arts and understanding of content across the curriculum for students whose first language is not English.

d. Young adult literature, American literature, and world literature.

(1) Reads, comprehends, and analyzes a wide range of texts to build an understanding of self as well as the cultures of the United States and the world in order to acquire new information, to respond to the needs and demands of society and the workplace, and for personal fulfillment. Among these texts are fiction and nonfiction, graphic novels, classic and contemporary works, young adult literature, and nonprint texts.

(2) Reads a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience.

(3) Applies a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. Draws on prior experience, interactions with other readers and writers, knowledge of word meaning and of other texts, word identification strategies, and an understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).

(4) Participates as a knowledgeable, reflective, creative, and critical member of a variety of literacy communities.

e. Creative voice.

(1) Understands the art of oral interpretation and how to provide opportunities for students to develop and apply oral interpretation skills in individual and group performances for a variety of audiences, purposes and occasions.

(2) Understands the basic skills of theatre production including acting, stage movement, and basic stage design.

f. Argumentation/debate.

(1) Understands concepts and principles of classical and contemporary rhetoric and is able to plan, prepare, organize, deliver and evaluate speeches and presentations.

(2) Understands argumentation and debate and how to provide students with opportunities to apply skills and strategies for argumentation and debate in a variety of formats and contexts.

g. Journalism.

(1) Understands ethical standards and major legal issues including First Amendment rights and responsibilities relevant to varied communication content. Utilizes strategies to teach students about the importance of freedom of speech in a democratic society and the rights and responsibilities of communicators.

(2) Understands the writing process as it relates to journalism (e.g., brainstorming, questioning, reporting, gathering and synthesizing information, writing, editing, and evaluating the final media product).

(3) Understands a variety of forms of journalistic writing (e.g., news, sports, features, opinion, Web-based) and the appropriate styles (e.g., Associated Press, multiple sources with attribution, punctuation) and additional forms unique to journalism (e.g., headlines, cutlines, and/or visual presentations).

h. Mass media production.

(1) Understands the role of the media in a democracy and the importance of preserving that role.

(2) Understands how to interpret and analyze various types of mass media messages in order for students to become critical consumers.

(3) Develops the technological skills needed to package media products effectively using various forms of journalistic design with a range of visual and auditory methods.

i. Reading strategies (if not completed as part of the professional education core requirements).

(1) Uses a variety of skills and strategies to comprehend and interpret complex fiction, nonfiction and informational text.

(2) Reads for a variety of purposes and across content areas.

13.28(7) *Foreign language.* K-8 and 5-12. Completion of 24 semester hours in each foreign language for which endorsement is sought.

13.28(8) *Health.* K-8 and 5-12. Completion of 24 semester hours in health to include coursework in public or community health, consumer health, substance abuse, family life education, mental/emotional health, and human nutrition.

13.28(9) *Family and consumer sciences—general.* 5-12. Completion of 24 semester hours in family and consumer sciences to include coursework in human development, parenthood education, family studies, consumer resource management, textiles and apparel, housing, and foods and nutrition.

13.28(10) *Industrial technology.* 5-12. Completion of 24 semester hours in industrial technology to include coursework in manufacturing, construction, energy and power, graphic communications and transportation. The coursework is to include at least 6 semester hours in three different areas.

13.28(11) *Journalism.* 5-12. Completion of 15 semester hours in journalism to include coursework in writing, editing, production and visual communications.

13.28(12) *Mathematics.*

a. K-8. Completion of 24 semester hours in mathematics to include coursework in algebra, geometry, number theory, measurement, computer programming, and probability and statistics.

b. 5-12.

(1) Completion of 24 semester hours in mathematics to include a linear algebra or an abstract (modern) algebra course, a geometry course, a two-course sequence in calculus, a computer programming course, a probability and statistics course, and coursework in discrete mathematics.

(2) For holders of the physics 5-12 endorsement, completion of 17 semester hours in mathematics to include a geometry course, a two-course sequence in calculus, a probability and statistics course, and coursework in discrete mathematics.

(3) For holders of the all science 9-12 endorsement, completion of 17 semester hours in mathematics to include a geometry course, a two-course sequence in calculus, a probability and statistics course, and coursework in discrete mathematics.

13.28(13) *Music.*

a. K-8. Completion of 24 semester hours in music to include coursework in music theory (at least two courses), music history, and applied music.

b. 5-12. Completion of 24 semester hours in music to include coursework in music theory (at least two courses), music history (at least two courses), applied music, and conducting.

13.28(14) *Physical education.*

a. K-8. Completion of 24 semester hours in physical education to include coursework in human anatomy, human physiology, movement education, adapted physical education, physical education in the elementary school, human growth and development of children related to physical education, and first aid and emergency care.

b. 5-12. Completion of 24 semester hours in physical education to include coursework in human anatomy, kinesiology, human physiology, human growth and development related to maturational and motor learning, adapted physical education, curriculum and administration of physical education, assessment processes in physical education, and first aid and emergency care.

13.28(15) *Reading.*

a. K-8 requirements. Completion of 24 semester hours in reading to include all of the following requirements:

(1) Foundations of reading. This requirement includes the following competencies:

1. The practitioner demonstrates knowledge of the psychological, sociocultural, and linguistic foundations of reading and writing processes and instruction.

2. The practitioner demonstrates knowledge of a range of research pertaining to reading, writing, and learning, including scientifically based reading research, and knowledge of histories of reading. The range of research encompasses research traditions from the fields of the social sciences and other paradigms appropriate for informing practice.

3. The practitioner demonstrates knowledge of the major components of reading, such as phonemic awareness, word identification, phonics, vocabulary, fluency, and comprehension, and effectively integrates curricular standards with student interests, motivation, and background knowledge.

(2) Reading in the content areas. This requirement includes the following competencies:

1. The practitioner demonstrates knowledge of text structure and the dimensions of content area vocabulary and comprehension, including literal, interpretive, critical, and evaluative.

2. The practitioner provides content area instruction in reading and writing that effectively uses a variety of research-based strategies and practices.

(3) Practicum. This requirement includes the following competencies:

1. The practitioner works with licensed professionals who observe, evaluate, and provide feedback on the practitioner's knowledge, dispositions, and performance of the teaching of reading and writing.

2. The practitioner effectively uses reading and writing strategies, materials, and assessments based upon appropriate reading and writing research and works with colleagues and families in the support of children's reading and writing development.

(4) Language development. This requirement includes the following competency: The practitioner uses knowledge of language development and acquisition of reading skills (birth through sixth grade), and the variations related to cultural and linguistic diversity to provide effective instruction in reading and writing.

(5) Oral communication. This requirement includes the following competencies:

1. The practitioner has knowledge of the unique needs and backgrounds of students with language differences and delays.

2. The practitioner uses effective strategies for facilitating the learning of Standard English by all learners.

(6) Written communication. This requirement includes the following competency: The practitioner uses knowledge of reading-writing-speaking connections; the writing process; the stages of spelling

development; the different types of writing, such as narrative, expressive, persuasive, informational and descriptive; and the connections between oral and written language development to effectively teach writing as communication.

(7) Reading assessment, diagnosis and evaluation. This requirement includes the following competencies:

1. The practitioner uses knowledge of a variety of instruments, procedures, and practices that range from individual to group and from formal to informal to alternative for the identification of students' reading proficiencies and needs, for planning and revising instruction for all students, and for communicating the results of ongoing assessments to all stakeholders.

2. The practitioner demonstrates awareness of policies and procedures related to special programs, including Title I.

(8) Children's nonfiction and fiction. This requirement includes the following competency: The practitioner uses knowledge of children's literature for:

1. Modeling the reading and writing of varied genres, including fiction and nonfiction; technology- and media-based information; and nonprint materials;

2. Motivating through the use of texts at multiple levels, representing broad interests, and reflecting varied cultures, linguistic backgrounds, and perspectives; and

3. Matching text complexities to the proficiencies and needs of readers.

(9) Reading instructional strategies. This requirement includes the following competency: The practitioner uses knowledge of a range of research-based strategies and instructional technology for designing and delivering effective instruction across the curriculum, for grouping students, and for selecting materials appropriate for learners at various stages of reading and writing development and from varied cultural and linguistic backgrounds.

b. 5-12 requirements. Completion of 24 semester hours in reading to include all of the following requirements:

(1) Foundations of reading. This requirement includes the following competencies:

1. The practitioner demonstrates knowledge of the psychological, sociocultural, and linguistic foundations of reading and writing processes and instruction.

2. The practitioner demonstrates knowledge of a range of research pertaining to reading, writing, and learning, including scientifically based reading research, and knowledge of histories of reading. The range of research encompasses research traditions from the fields of the social sciences and other paradigms appropriate for informing practice.

3. The practitioner demonstrates knowledge of the major components of reading such as phonemic awareness, word identification, phonics, vocabulary, fluency, and comprehension, and integrates curricular standards with student interests, motivation, and background knowledge.

(2) Reading in the content areas. This requirement includes the following competencies:

1. The practitioner demonstrates knowledge of text structure and the dimensions of content area vocabulary and comprehension, including literal, interpretive, critical, and evaluative.

2. The practitioner provides content area instruction in reading and writing that effectively uses a variety of research-based strategies and practices.

(3) Practicum. This requirement includes the following competencies:

1. The practitioner works with licensed professionals who observe, evaluate, and provide feedback on the practitioner's knowledge, dispositions, and performance of the teaching of reading and writing.

2. The practitioner effectively uses reading and writing strategies, materials, and assessments based upon appropriate reading and writing research, and works with colleagues and families in the support of students' reading and writing development.

(4) Language development. This requirement includes the following competency: The practitioner uses knowledge of the relationship of language acquisition and language development with the acquisition and development of reading skills, and the variations related to cultural and linguistic diversity to provide effective instruction in reading and writing.

(5) Oral communication. This requirement includes the following competency: The practitioner demonstrates knowledge of the unique needs and backgrounds of students with language differences and uses effective strategies for facilitating the learning of Standard English by all learners.

(6) Written communication. This requirement includes the following competency: The practitioner uses knowledge of reading-writing-speaking connections to teach the skills and processes necessary for writing narrative, expressive, persuasive, informational, and descriptive texts, including text structures and mechanics such as grammar, usage, and spelling.

(7) Reading assessment, diagnosis and evaluation. This requirement includes the following competencies:

1. The practitioner uses knowledge of a variety of instruments, procedures, and practices that range from individual to group and from formal to informal to alternative for the identification of students' reading proficiencies and needs, for planning and revising instruction for all students, and for communicating the results of ongoing assessments to all stakeholders.

2. The practitioner demonstrates awareness of policies and procedures related to special programs.

(8) Adolescent or young adult nonfiction and fiction. This requirement includes the following competency: The practitioner uses knowledge of adolescent or young adult literature for:

1. Modeling the reading and writing of varied genres, including fiction and nonfiction; technology and media-based information; and nonprint materials;

2. Motivating through the use of texts at multiple levels, representing broad interests, and reflecting varied cultures, linguistic backgrounds and perspectives; and

3. Matching text complexities to the proficiencies and needs of readers.

(9) Reading instructional strategies. This requirement includes the following competency: The practitioner uses knowledge of a range of research-based strategies and instructional technology for designing and delivering instruction across the curriculum, for grouping students, and for selecting materials appropriate for learners at various stages of reading and writing development and from varied cultural and linguistic backgrounds.

13.28(16) *Reading specialist.* K-12. The applicant must have met the requirements for the standard license and a teaching endorsement, and present evidence of at least one year of experience which included the teaching of reading as a significant part of the responsibility.

a. Authorization. The holder of this endorsement is authorized to serve as a reading specialist in kindergarten and grades one through twelve.

b. Program requirements. Degree—master's.

c. Content. Completion of a sequence of courses and experiences which may have been a part of, or in addition to, the degree requirements. This sequence is to be at least 27 semester hours to include the following:

(1) Educational psychology/human growth and development.
(2) Educational measurement and evaluation.
(3) Foundations of reading.
(4) Diagnosis of reading problems.
(5) Remedial reading.
(6) Psychology of reading.
(7) Language learning and reading disabilities.
(8) Practicum in reading.
(9) Administration and supervision of reading programs at the elementary and secondary levels.

13.28(17) *Science.*

a. Science—basic. K-8.

(1) Required coursework. Completion of at least 24 semester hours in science to include 12 hours in physical sciences, 6 hours in biology, and 6 hours in earth/space sciences.

(2) Competencies.

1. Understand the nature of scientific inquiry, its central role in science, and how to use the skills and processes of scientific inquiry.

2. Understand the fundamental facts and concepts in major science disciplines.

3. Be able to make conceptual connections within and across science disciplines, as well as to mathematics, technology, and other school subjects.

4. Be able to use scientific understanding when dealing with personal and societal issues.

b. Biological science. 5-12. Completion of 24 semester hours in biological science or 30 semester hours in the broad area of science to include 15 semester hours in biological science.

c. Chemistry. 5-12. Completion of 24 semester hours in chemistry or 30 semester hours in the broad area of science to include 15 semester hours in chemistry.

d. Earth science. 5-12. Completion of 24 semester hours in earth science or 30 semester hours in the broad area of science to include 15 semester hours in earth science.

e. General science. 5-12. Completion of 24 semester hours in science to include coursework in biological science, chemistry, and physics.

f. Physical science. 5-12. Completion of 24 semester hours in physical sciences to include coursework in physics, chemistry, and earth science.

g. Physics.

(1) 5-12. Completion of 24 semester hours in physics or 30 semester hours in the broad area of science to include 15 semester hours in physics.

(2) For holders of the mathematics 5-12 endorsement, completion of:

1. 12 credits of physics to include coursework in mechanics, electricity, and magnetism; and

2. A methods class that includes inquiry-based instruction, resource management, and laboratory safety.

(3) For holders of the chemistry 5-12 endorsement, completion of 12 credits of physics to include coursework in mechanics, electricity, and magnetism.

h. All science I. 5-8. The holder of this endorsement must also hold the middle school endorsement listed under rule 282—13.27(272).

(1) Required coursework. Completion of at least 24 semester hours in science to include 6 hours in chemistry, 6 hours in physics or physical sciences, 6 hours in biology, and 6 hours in the earth/space sciences.

(2) Competencies.

1. Understand the nature of scientific inquiry, its central role in science, and how to use the skills and processes of scientific inquiry.

2. Understand the fundamental facts and concepts in major science disciplines.

3. Be able to make conceptual connections within and across science disciplines, as well as to mathematics, technology, and other school subjects.

4. Be able to use scientific understanding when dealing with personal and societal issues.

i. All science II. 9-12.

(1) Required coursework.

1. Completion of one of the following endorsement areas listed under subrule 13.28(17): biological science 5-12 or chemistry 5-12 or earth science 5-12 or physics 5-12.

2. Completion of at least 12 hours in each of the other three endorsement areas.

(2) Competencies.

1. Understand the nature of scientific inquiry, its central role in science, and how to use the skills and processes of scientific inquiry.

2. Understand the fundamental facts and concepts in major science disciplines.

3. Be able to make conceptual connections within and across science disciplines, as well as to mathematics, technology, and other school subjects.

4. Be able to use scientific understanding when dealing with personal and societal issues.

13.28(18) *Social sciences.*

a. American government. 5-12. Completion of 24 semester hours in American government or 30 semester hours in the broad area of social sciences to include 15 semester hours in American government.

b. American history. 5-12. Completion of 24 semester hours in American history or 30 semester hours in the broad area of social sciences to include 15 semester hours in American history.

c. Anthropology. 5-12. Completion of 24 semester hours in anthropology or 30 semester hours in the broad area of social sciences to include 15 semester hours in anthropology.

d. Economics. 5-12. Completion of 24 semester hours in economics or 30 semester hours in the broad area of social sciences to include 15 semester hours in economics, or 30 semester hours in the broad area of business to include 15 semester hours in economics.

e. Geography. 5-12. Completion of 24 semester hours in geography or 30 semester hours in the broad area of social sciences to include 15 semester hours in geography.

f. History. K-8. Completion of 24 semester hours in history to include at least 9 semester hours in American history and 9 semester hours in world history.

g. Psychology. 5-12. Completion of 24 semester hours in psychology or 30 semester hours in the broad area of social sciences to include 15 semester hours in psychology.

h. Social studies. K-8. Completion of 24 semester hours in social studies, to include coursework from at least three of these areas: history, sociology, economics, American government, psychology and geography.

i. Sociology. 5-12. Completion of 24 semester hours in sociology or 30 semester hours in the broad area of social sciences to include 15 semester hours in sociology.

j. World history. 5-12. Completion of 24 semester hours in world history or 30 semester hours in the broad area of social sciences to include 15 semester hours in world history.

k. All social sciences. 5-12. Completion of 51 semester hours in the social sciences to include 9 semester hours in each of American and world history, 9 semester hours in government, 6 semester hours in sociology, 6 semester hours in psychology other than educational psychology, 6 semester hours in geography, and 6 semester hours in economics.

13.28(19) *Speech communication/theatre.*

a. K-8. Completion of 20 semester hours in speech communication/theatre to include coursework in speech communication, creative drama or theatre, and oral interpretation.

b. 5-12. Completion of 24 semester hours in speech communication/theatre to include coursework in speech communication, oral interpretation, creative drama or theatre, argumentation and debate, and mass media communication.

13.28(20) *English as a second language (ESL).* K-12.

a. Authorization. The holder of this endorsement is authorized to teach English as a second language in kindergarten and grades one through twelve.

b. Program requirements.

(1) Degree—baccalaureate, and

(2) Completion of an approved human relations program, and

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

c. Content. Completion of 18 semester hours of coursework in English as a second language to include the following:

(1) Knowledge of pedagogy to include the following:

1. Methods and curriculum to include the following:

- Bilingual and ESL methods.
- Literacy in native and second language.
- Methods for subject matter content.
- Adaptation and modification of curriculum.

2. Assessment to include language proficiency and academic content.

(2) Knowledge of linguistics to include the following:

1. Psycholinguistics and sociolinguistics.
2. Language acquisition and proficiency to include the following:

- Knowledge of first and second language proficiency.
- Knowledge of first and second language acquisition.
- Language to include structure and grammar of English.

(3) Knowledge of cultural and linguistic diversity to include the following:

1. History.

2. Theory, models, and research.

3. Policy and legislation.

(4) Current issues with transient populations.

d. Other. Individuals who were licensed in Iowa prior to October 1, 1988, and were allowed to teach English as a second language without completing the endorsement requirements must complete the endorsement requirements by July 1, 2012, in order to teach or continue to teach English as a second language. A waiver provision is available through the board of educational examiners for individuals who have been successfully teaching English as a second language.

13.28(21) *Elementary school teacher librarian.*

a. Authorization. The holder of this endorsement is authorized to serve as a teacher librarian in kindergarten and grades one through eight.

b. Program requirements.

(1) Degree—baccalaureate.

(2) Completion of an approved human relations program.

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

c. Content—prior to September 1, 2012. The following requirements apply for endorsements issued prior to September 1, 2012. Completion of 24 semester hours in school library coursework to include the following:

(1) Knowledge of materials and literature in all formats for elementary children.

(2) Selection, utilization and evaluation of library resources and equipment.

(3) Design and production of instructional materials.

(4) Acquisition, cataloging and classification of library materials.

(5) Information literacy, reference services and networking.

(6) Planning, evaluation and administration of school library programs.

(7) Practicum in an elementary school media center/library.

d. Content—effective on and after September 1, 2012. The following requirements apply for endorsements issued on and after September 1, 2012. Completion of 24 semester hours in school library coursework to include the following:

(1) Literacy and reading. This requirement includes the following competencies:

1. Practitioners collaborate with other teachers to integrate developmentally appropriate literature in multiple formats to support literacy in children.

2. Practitioners demonstrate knowledge of resources and strategies to foster leisure reading and model personal enjoyment of reading among children, based on familiarity with selection tools and current trends in literature for children.

(2) Information and knowledge. This requirement includes the following competencies:

1. Practitioners teach multiple strategies to locate, analyze, evaluate, and ethically use information in the context of inquiry-based learning.

2. Practitioners advocate for flexible and open access to library resources, both physical and virtual.

3. Practitioners uphold and promote the legal and ethical codes of their profession, including privacy, confidentiality, freedom and equity of access to information.

4. Practitioners use skills and knowledge to assess reference sources, services, and tools in order to mediate between information needs and resources to assist learners in determining what they need.

5. Practitioners model and facilitate authentic learning with current and emerging digital tools for locating, analyzing, evaluating and ethically using information resources to support research, learning, creating, and communicating in a digital society.

6. Practitioners demonstrate knowledge of creative and innovative uses of technologies to engage students and facilitate higher-level thinking.

7. Practitioners develop an articulated information literacy curriculum grounded in research related to the information search process.

(3) Program administration and leadership. This requirement includes the following competencies:

1. Practitioners evaluate and select print, nonprint, and digital resources using professional selection tools and evaluation criteria to develop and manage a quality collection designed to meet the diverse curricular, personal, and professional needs of the educational community.

2. Practitioners demonstrate knowledge necessary to organize the library collections according to current standard library cataloging and classification principles.

3. Practitioners develop policies and procedures to support ethical use of information, intellectual freedom, selection and reconsideration of library materials, and the privacy of users.

4. Practitioners develop strategies for working with regular classroom teachers, support services personnel, paraprofessionals, and other individuals involved in the educational program.

(4) Practicum. This requirement includes the following competencies:

1. Practitioners apply knowledge of learning styles, stages of human growth and development, and cultural influences of learning at the elementary level.

2. Practitioners implement the principles of effective teaching and learning that contribute to an active, inquiry-based approach to learning in a digital environment at the elementary level.

3. Practitioners understand the teacher librarian role in curriculum development and the school improvement process at the elementary level.

4. Practitioners collaborate to integrate information literacy and emerging technologies into content area curricula at the elementary level.

13.28(22) *Secondary school teacher librarian.*

a. Authorization. The holder of this endorsement is authorized to serve as a teacher librarian in grades five through twelve.

b. Program requirements.

(1) Degree—baccalaureate.

(2) Completion of an approved human relations program.

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

c. Content—prior to September 1, 2012. The following requirements apply for endorsements issued prior to September 1, 2012. Completion of 24 semester hours in school library coursework to include the following:

(1) Knowledge of materials and literature in all formats for adolescents.

(2) Selection, utilization and evaluation of library resources and equipment.

(3) Design and production of instructional materials.

(4) Acquisition, cataloging and classification of library materials.

(5) Information literacy, reference services and networking.

(6) Planning, evaluation and administration of school library programs.

(7) Practicum in a secondary school media center/library.

d. Content—effective on and after September 1, 2012. The following requirements apply for endorsements issued on and after September 1, 2012. Completion of 24 semester hours in school library coursework to include the following:

(1) Literacy and reading. This requirement includes the following competencies:

1. Practitioners collaborate with other teachers to integrate developmentally appropriate literature in multiple formats to support literacy in young adults.

2. Practitioners demonstrate knowledge of resources and strategies to foster leisure reading and model personal enjoyment of reading among young adults, based on familiarity with selection tools and current trends in literature for young adults.

(2) Information and knowledge. This requirement includes the following competencies:

1. Practitioners teach multiple strategies to locate, analyze, evaluate, and ethically use information in the context of inquiry-based learning.

2. Practitioners advocate for flexible and open access to library resources, both physical and virtual.

3. Practitioners uphold and promote the legal and ethical codes of their profession, including privacy, confidentiality, freedom and equity of access to information.

4. Practitioners use skills and knowledge to assess reference sources, services, and tools in order to mediate between information needs and resources to assist learners in determining what they need.

5. Practitioners model and facilitate authentic learning with current and emerging digital tools for locating, analyzing, evaluating and ethically using information resources to support research, learning, creating, and communicating in a digital society.

6. Practitioners demonstrate knowledge of creative and innovative uses of technologies to engage students and facilitate higher-level thinking.

7. Practitioners develop an articulated information literacy curriculum grounded in research related to the information search process.

(3) Program administration and leadership. This requirement includes the following competencies:

1. Practitioners evaluate and select print, nonprint, and digital resources using professional selection tools and evaluation criteria to develop and manage a quality collection designed to meet the diverse curricular, personal, and professional needs of the educational community.

2. Practitioners demonstrate knowledge necessary to organize the library collections according to current standard library cataloging and classification principles.

3. Practitioners develop policies and procedures to support ethical use of information, intellectual freedom, selection and reconsideration of library materials, and the privacy of users.

4. Practitioners develop strategies for working with regular classroom teachers, support services personnel, paraprofessionals, and other individuals involved in the educational program.

(4) Practicum. This requirement includes the following competencies:

1. Practitioners apply knowledge of learning styles, stages of human growth and development, and cultural influences of learning at the secondary level.

2. Practitioners implement the principles of effective teaching and learning that contribute to an active, inquiry-based approach to learning in a digital environment at the secondary level.

3. Practitioners understand the teacher librarian role in curriculum development and the school improvement process at the secondary level.

4. Practitioners collaborate to integrate information literacy and emerging technologies into content area curricula at the secondary level.

13.28(23) *School teacher librarian.* PK-12.

a. Authorization. The holder of this endorsement is authorized to serve as a teacher librarian in prekindergarten through grade twelve. The applicant must be the holder of or eligible for the initial license.

b. Program requirements. Degree—master's.

c. Content—prior to September 1, 2012. The following requirements apply for endorsements issued prior to September 1, 2012. Completion of a sequence of courses and experiences which may have been part of, or in addition to, the degree requirements. This sequence is to be at least 30 semester hours in school library coursework, to include the following:

(1) Planning, evaluation and administration of school library programs.
(2) Curriculum development and teaching and learning strategies.
(3) Instructional development and communication theory.
(4) Selection, evaluation and utilization of library resources and equipment.
(5) Acquisition, cataloging and classification of library materials.
(6) Design and production of instructional materials.
(7) Methods for instruction and integration of information literacy skills into the school curriculum.
(8) Information literacy, reference services and networking.
(9) Knowledge of materials and literature in all formats for elementary children and adolescents.
(10) Reading, listening and viewing guidance.
(11) Utilization and application of computer technology.
(12) Practicum at both the elementary and secondary levels.
(13) Research in library and information science.

d. Content—effective on and after September 1, 2012. The following requirements apply for endorsements issued on and after September 1, 2012. Completion of a sequence of courses and

experiences which may have been part of, or in addition to, the degree requirements. This sequence is to be at least 30 semester hours in school library coursework, to include the following:

(1) Literacy and reading. This requirement includes the following competencies:

1. Practitioners collaborate with other teachers to integrate developmentally appropriate literature in multiple formats to support literacy for youth of all ages.

2. Practitioners demonstrate knowledge of resources and strategies to foster leisure reading and model personal enjoyment of reading, based on familiarity with selection tools and current trends in literature for youth of all ages.

3. Practitioners understand how to develop a collection of reading and informational materials in print and digital formats that supports the diverse developmental, cultural, social and linguistic needs of all learners and their communities.

4. Practitioners model and teach reading comprehension strategies to create meaning from text for youth of all ages.

(2) Information and knowledge. This requirement includes the following competencies:

1. Practitioners teach multiple strategies to locate, analyze, evaluate, and ethically use information in the context of inquiry-based learning.

2. Practitioners advocate for flexible and open access to library resources, both physical and virtual.

3. Practitioners uphold and promote the legal and ethical codes of their profession, including privacy, confidentiality, freedom and equity of access to information.

4. Practitioners use skills and knowledge to assess reference sources, services, and tools in order to mediate between information needs and resources to assist learners in determining what they need.

5. Practitioners model and facilitate authentic learning with current and emerging digital tools for locating, analyzing, evaluating and ethically using information resources to support research, learning, creating, and communicating in a digital society.

6. Practitioners demonstrate knowledge of creative and innovative uses of technologies to engage students and facilitate higher-level thinking.

7. Practitioners develop an articulated information literacy curriculum grounded in research related to the information search process.

8. Practitioners understand the process of collecting, interpreting, and using data to develop new knowledge to improve the school library program.

9. Practitioners employ the methods of research in library and information science.

(3) Program administration and leadership. This requirement includes the following competencies:

1. Practitioners evaluate and select print, nonprint, and digital resources using professional selection tools and evaluation criteria to develop and manage a quality collection designed to meet the diverse curricular, personal, and professional needs of the educational community.

2. Practitioners demonstrate knowledge necessary to organize the library collections according to current standard library cataloging and classification principles.

3. Practitioners develop policies and procedures to support ethical use of information, intellectual freedom, selection and reconsideration of library materials, and the privacy of users of all ages.

4. Practitioners develop strategies for working with regular classroom teachers, support services personnel, paraprofessionals, and other individuals involved in the educational program.

5. Practitioners demonstrate knowledge of best practices related to planning, budgeting (including alternative funding), organizing, and evaluating human and information resources and facilities to ensure equitable access.

6. Practitioners understand strategic planning to ensure that the school library program addresses the needs of diverse communities.

7. Practitioners advocate for school library and information programs, resources, and services among stakeholders.

8. Practitioners promote initiatives and partnerships to further the mission and goals of the school library program.

(4) Practicum. This requirement includes the following competencies:

1. Practitioners apply knowledge of learning styles, stages of human growth and development, and cultural influences of learning at the elementary and secondary levels.

2. Practitioners implement the principles of effective teaching and learning that contribute to an active, inquiry-based approach to learning in a digital environment at the elementary and secondary levels.

3. Practitioners understand the teacher librarian role in curriculum development and the school improvement process at the elementary and secondary levels.

4. Practitioners collaborate to integrate information literacy and emerging technologies into content area curricula.

13.28(24) *Talented and gifted teacher.*

a. Authorization. The holder of this endorsement is authorized to serve as a teacher or a coordinator of programs for the talented and gifted from the prekindergarten level through grade twelve. This authorization does not permit general classroom teaching at any level except that level or area for which the holder is eligible or holds the specific endorsement.

b. Program requirements—content. Completion of 12 undergraduate or graduate semester hours of coursework in the area of the talented and gifted to include the following:

(1) Psychology of the gifted.

1. Social needs.
2. Emotional needs.

(2) Programming for the gifted.

1. Prekindergarten-12 identification.
2. Differentiation strategies.
3. Collaborative teaching skills.
4. Program goals and performance measures.
5. Program evaluation.

(3) Practicum experience in gifted programs.

NOTE: Teachers in specific subject areas will not be required to hold this endorsement if they teach gifted students in their respective endorsement areas.

c. Other. Individuals who were licensed in Iowa prior to August 31, 1995, and were allowed to teach talented and gifted classes without completing the endorsement requirements must complete the endorsement requirements by July 1, 2012, in order to teach or continue to teach talented and gifted classes. A waiver provision is provided through the board of educational examiners for individuals who have been successfully teaching students who are talented and gifted.

13.28(25) *American Sign Language endorsement.*

a. Authorization. The holder of this endorsement is authorized to teach American Sign Language in kindergarten and grades one through twelve.

b. Program requirements.

(1) Degree—baccalaureate.

(2) Completion of an approved human relations program.

(3) Completion of the professional education core.

c. Content. Completion of 18 semester hours of coursework in American Sign Language to include the following:

(1) Second language acquisition.

(2) Sociology of the deaf community.

(3) Linguistic structure of American Sign Language.

(4) Language teaching methodology specific to American Sign Language.

(5) Teaching the culture of deaf people.

(6) Assessment of students in an American Sign Language program.

d. Other. Be the holder of or be eligible for one other teaching endorsement listed in rules 282—13.26(272) and 282—13.27(272) and this rule.

13.28(26) *Elementary counselor.*

a. Authorization. The holder of this endorsement has not completed the professional education core (subrule 13.18(4)) but is authorized to serve as a school guidance counselor in kindergarten and grades one through eight.

b. Program requirements.

(1) Master's degree from an accredited institution of higher education.

(2) Completion of an approved human relations component.

(3) Completion of an approved exceptional learner component.

c. Content. Completion of a sequence of courses and experiences which may have been a part of, or in addition to, the degree requirements to include the following:

(1) Nature and needs of individuals at all developmental levels.

1. Develop strategies for facilitating development through the transition from childhood to adolescence and from adolescence to young adulthood.

2. Apply knowledge of learning and personality development to assist students in developing their full potential.

(2) Social and cultural foundations.

1. Demonstrate awareness of and sensitivity to the unique social, cultural, and economic circumstances of students and their racial/ethnic, gender, age, physical, and learning differences.

2. Demonstrate sensitivity to the nature and the functioning of the student within the family, school and community contexts.

3. Demonstrate the counseling and consultation skills needed to facilitate informed and appropriate action in response to the needs of students.

(3) Fostering of relationships.

1. Employ effective counseling and consultation skills with students, parents, colleagues, administrators, and others.

2. Communicate effectively with parents, colleagues, students and administrators.

3. Counsel students in the areas of personal, social, academic, and career development.

4. Assist families in helping their children address the personal, social, and emotional concerns and problems that may impede educational progress.

5. Implement developmentally appropriate counseling interventions with children and adolescents.

6. Demonstrate the ability to negotiate and move individuals and groups toward consensus or conflict resolution or both.

7. Refer students for specialized help when appropriate.

8. Value the well-being of the students as paramount in the counseling relationship.

(4) Group work.

1. Implement developmentally appropriate interventions involving group dynamics, counseling theories, group counseling methods and skills, and other group work approaches.

2. Apply knowledge of group counseling in implementing appropriate group processes for elementary, middle school, and secondary students.

(5) Career development, education, and postsecondary planning.

1. Assist students in the assessment of their individual strengths, weaknesses, and differences, including those that relate to academic achievement and future plans.

2. Apply knowledge of career assessment and career choice programs.

3. Implement occupational and educational placement, follow-up and evaluation.

4. Develop a counseling network and provide resources for use by students in personalizing the exploration of postsecondary educational opportunities.

(6) Assessment and evaluation.

1. Demonstrate individual and group approaches to assessment and evaluation.

2. Demonstrate an understanding of the proper administration and uses of standardized tests.

3. Apply knowledge of test administration, scoring, and measurement concerns.

4. Apply evaluation procedures for monitoring student achievement.

5. Apply assessment information in program design and program modifications to address students' needs.

6. Apply knowledge of legal and ethical issues related to assessment and student records.

(7) Professional orientation.

1. Apply knowledge of history, roles, organizational structures, ethics, standards, and credentialing.

2. Maintain a high level of professional knowledge and skills.

3. Apply knowledge of professional and ethical standards to the practice of school counseling.

4. Articulate the counselor role to school personnel, parents, community, and students.

(8) School counseling skills.

1. Design, implement, and evaluate a comprehensive, developmental school guidance program.

2. Implement and evaluate specific strategies designed to meet program goals and objectives.

3. Consult and coordinate efforts with resource persons, specialists, businesses, and agencies outside the school to promote program objectives.

4. Provide information appropriate to the particular educational transition and assist students in understanding the relationship that their curricular experiences and academic achievements will have on subsequent educational opportunities.

5. Assist parents and families in order to provide a supportive environment in which students can become effective learners and achieve success in pursuit of appropriate educational goals.

6. Provide training, orientation, and consultation assistance to faculty, administrators, staff, and school officials to assist them in responding to the social, emotional, and educational development of all students.

7. Collaborate with teachers, administrators, and other educators in ensuring that appropriate educational experiences are provided that allow all students to achieve success.

8. Assist in the process of identifying and addressing the needs of the exceptional student.

9. Apply knowledge of legal and ethical issues related to child abuse and mandatory reporting.

10. Advocate for the educational needs of students and work to ensure that these needs are addressed at every level of the school experience.

11. Promote use of counseling and guidance activities and programs involving the total school community to provide a positive school climate.

(9) Classroom management.

1. Apply effective classroom management strategies as demonstrated in classroom guidance and large group guidance lessons.

2. Consult with teachers and parents about effective classroom management and behavior management strategies.

(10) Curriculum.

1. Write classroom lessons including objectives, learning activities, and discussion questions.

2. Utilize various methods of evaluating what students have learned in classroom lessons.

3. Demonstrate competency in conducting classroom and other large group activities, utilizing an effective lesson plan design, engaging students in the learning process, and employing age-appropriate classroom management strategies.

4. Design a classroom unit of developmentally appropriate learning experiences.

5. Demonstrate knowledge in writing standards and benchmarks for curriculum.

(11) Learning theory.

1. Identify and consult with teachers about how to create a positive learning environment utilizing such factors as effective classroom management strategies, building a sense of community in the classroom, and cooperative learning experiences.

2. Identify and consult with teachers regarding teaching strategies designed to motivate students using small group learning activities, experiential learning activities, student mentoring programs, and shared decision-making opportunities.

3. Demonstrate knowledge of child and adolescent development and identify developmentally appropriate teaching and learning strategies.

(12) Teaching and counseling practicum. The school counselor demonstrates competency in conducting classroom sessions with elementary and middle school students. The practicum consisting of a minimum of 500 contact hours provides opportunities for the prospective counselor, under the supervision of a licensed professional school counselor, to engage in a variety of activities in which a regularly employed school counselor would be expected to participate including, but not limited to, individual counseling, group counseling, developmental classroom guidance, and consultation.

13.28(27) *Secondary counselor.*

a. Authorization. The holder of this endorsement has not completed the professional education core (subrule 13.18(4)) but is authorized to serve as a school guidance counselor in grades five through twelve.

b. Program requirements.

(1) Master's degree from an accredited institution of higher education.

(2) Completion of an approved human relations component.

(3) Completion of an approved exceptional learner component.

c. Content. Completion of a sequence of courses and experiences which may have been a part of, or in addition to, the degree requirements to include the following:

(1) Nature and needs of individuals at all developmental levels.

1. Develop strategies for facilitating development through the transition from childhood to adolescence and from adolescence to young adulthood.

2. Apply knowledge of learning and personality development to assist students in developing their full potential.

(2) Social and cultural foundations.

1. Demonstrate awareness of and sensitivity to the unique social, cultural, and economic circumstances of students and their racial/ethnic, gender, age, physical, and learning differences.

2. Demonstrate sensitivity to the nature and the functioning of the student within the family, school and community contexts.

3. Demonstrate the counseling and consultation skills needed to facilitate informed and appropriate action in response to the needs of students.

(3) Fostering of relationships.

1. Employ effective counseling and consultation skills with students, parents, colleagues, administrators, and others.

2. Communicate effectively with parents, colleagues, students and administrators.

3. Counsel students in the areas of personal, social, academic, and career development.

4. Assist families in helping their children address the personal, social, and emotional concerns and problems that may impede educational progress.

5. Implement developmentally appropriate counseling interventions with children and adolescents.

6. Demonstrate the ability to negotiate and move individuals and groups toward consensus or conflict resolution or both.

7. Refer students for specialized help when appropriate.

8. Value the well-being of the students as paramount in the counseling relationship.

(4) Group work.

1. Implement developmentally appropriate interventions involving group dynamics, counseling theories, group counseling methods and skills, and other group work approaches.

2. Apply knowledge of group counseling in implementing appropriate group processes for elementary, middle school, and secondary students.

(5) Career development, education, and postsecondary planning.

1. Assist students in the assessment of their individual strengths, weaknesses, and differences, including those that relate to academic achievement and future plans.

2. Apply knowledge of career assessment and career choice programs.

3. Implement occupational and educational placement, follow-up and evaluation.

4. Develop a counseling network and provide resources for use by students in personalizing the exploration of postsecondary educational opportunities.

(6) Assessment and evaluation.

1. Demonstrate individual and group approaches to assessment and evaluation.
2. Demonstrate an understanding of the proper administration and uses of standardized tests.
3. Apply knowledge of test administration, scoring, and measurement concerns.
4. Apply evaluation procedures for monitoring student achievement.
5. Apply assessment information in program design and program modifications to address students' needs.
6. Apply knowledge of legal and ethical issues related to assessment and student records.

(7) Professional orientation.

1. Apply knowledge of history, roles, organizational structures, ethics, standards, and credentialing.
2. Maintain a high level of professional knowledge and skills.
3. Apply knowledge of professional and ethical standards to the practice of school counseling.
4. Articulate the counselor role to school personnel, parents, community, and students.

(8) School counseling skills.

1. Design, implement, and evaluate a comprehensive, developmental school guidance program.
2. Implement and evaluate specific strategies designed to meet program goals and objectives.
3. Consult and coordinate efforts with resource persons, specialists, businesses, and agencies outside the school to promote program objectives.
4. Provide information appropriate to the particular educational transition and assist students in understanding the relationship that their curricular experiences and academic achievements will have on subsequent educational opportunities.
5. Assist parents and families in order to provide a supportive environment in which students can become effective learners and achieve success in pursuit of appropriate educational goals.
6. Provide training, orientation, and consultation assistance to faculty, administrators, staff, and school officials to assist them in responding to the social, emotional, and educational development of all students.
7. Collaborate with teachers, administrators, and other educators in ensuring that appropriate educational experiences are provided that allow all students to achieve success.
8. Assist in the process of identifying and addressing the needs of the exceptional student.
9. Apply knowledge of legal and ethical issues related to child abuse and mandatory reporting.
10. Advocate for the educational needs of students and work to ensure that these needs are addressed at every level of the school experience.
11. Promote use of counseling and guidance activities and programs involving the total school community to provide a positive school climate.

(9) Classroom management.

1. Apply effective classroom management strategies as demonstrated in classroom guidance and large group guidance lessons.
2. Consult with teachers and parents about effective classroom management and behavior management strategies.

(10) Curriculum.

1. Write classroom lessons including objectives, learning activities, and discussion questions.
2. Utilize various methods of evaluating what students have learned in classroom lessons.
3. Demonstrate competency in conducting classroom and other large group activities, utilizing an effective lesson plan design, engaging students in the learning process, and employing age-appropriate classroom management strategies.
4. Design a classroom unit of developmentally appropriate learning experiences.
5. Demonstrate knowledge in writing standards and benchmarks for curriculum.

(11) Learning theory.

1. Identify and consult with teachers about how to create a positive learning environment utilizing such factors as effective classroom management strategies, building a sense of community in the classroom, and cooperative learning experiences.

2. Identify and consult with teachers regarding teaching strategies designed to motivate students using small group learning activities, experiential learning activities, student mentoring programs, and shared decision-making opportunities.

3. Demonstrate knowledge of child and adolescent development and identify developmentally appropriate teaching and learning strategies.

(12) Teaching and counseling practicum. The school counselor demonstrates competency in conducting classroom sessions with middle and secondary school students. The practicum consisting of a minimum of 500 contact hours provides opportunities for the prospective counselor, under the supervision of a licensed professional school counselor, to engage in a variety of activities in which a regularly employed school counselor would be expected to participate including, but not limited to, individual counseling, group work, developmental classroom guidance and consultation.

13.28(28) *School nurse endorsement.* The school nurse endorsement does not authorize general classroom teaching, although it does authorize the holder to teach health at all grade levels. Alternatively, a nurse may obtain a statement of professional recognition (SPR) from the board of educational examiners, in accordance with the provisions set out in 282—Chapter 16, Statements of Professional Recognition (SPR).

a. Authorization. The holder of this endorsement is authorized to provide service as a school nurse at the prekindergarten and kindergarten levels and in grades one through twelve.

b. Program requirements.

(1) Degree—baccalaureate, and

(2) Completion of an approved human relations program, and

(3) Completion of the professional education core. See subrules 13.18(3) and 13.18(4).

c. Content.

(1) Organization and administration of school nurse services including the appraisal of the health needs of children and youth.

(2) School-community relationships and resources/coordination of school and community resources to serve the health needs of children and youth.

(3) Knowledge and understanding of the health needs of exceptional children.

(4) Health education.

d. Other. Hold a license as a registered nurse issued by the Iowa board of nursing.

13.28(29) *Athletic coach.* K-12. An applicant for the coaching endorsement must hold a teacher's license with one of the teaching endorsements.

a. Authorization. The holder of this endorsement may serve as a head coach or an assistant coach in kindergarten and grades one through twelve.

b. Program requirements.

(1) One semester hour college or university course in the structure and function of the human body in relation to physical activity, and

(2) One semester hour college or university course in human growth and development of children and youth as related to physical activity, and

(3) Two semester hour college or university course in athletic conditioning, care and prevention of injuries and first aid as related to physical activity, and

(4) One semester hour college or university course in the theory of coaching interscholastic athletics.

[**ARC 7986B**, IAB 7/29/09, effective 9/2/09; **ARC 8248B**, IAB 11/4/09, effective 10/12/09; **ARC 8403B**, IAB 12/16/09, effective 1/20/10; **ARC 9070B**, IAB 9/8/10, effective 10/13/10; **ARC 9071B**, IAB 9/8/10, effective 10/13/10; **ARC 9210B**, IAB 11/3/10, effective 12/8/10; **ARC 9211B**, IAB 11/3/10, effective 12/8/10; **ARC 9212B**, IAB 11/3/10, effective 12/8/10; **ARC 9838B**, IAB 11/2/11, effective 12/7/11; **ARC 9839B**, IAB 11/2/11, effective 12/7/11]

282—13.29(272) Adding, removing or reinstating a teaching endorsement.

13.29(1) *Adding an endorsement.* After the issuance of a teaching license, an individual may add other endorsements to that license upon proper application, provided current requirements for that endorsement have been met. An updated license with expiration date unchanged from the original or renewed license will be prepared.

a. Options. To add an endorsement, the applicant must follow one of these options:

(1) Option 1. Receive the Iowa teacher education institution's recommendation that the current approved program requirements for the endorsement have been met.

(2) Option 2. Receive verification from the Iowa teacher education institution that the minimum state requirements for the endorsement have been met in lieu of the institution's approved program.

(3) Option 3. Receive verification from a state-approved and regionally accredited institution that the Iowa minimum requirements for the endorsement have been met.

(4) Option 4. Apply for a review of the transcripts by the board of educational examiners' staff to determine if all Iowa requirements have been met. The applicant must submit documentation that all of the Iowa requirements have been met by filing transcripts and supporting documentation for review. The fee for the transcript evaluation is in 282—Chapter 12. This fee shall be in addition to the fee for adding the endorsement.

b. Additional requirements for adding an endorsement.

(1) In addition to meeting the requirements listed in rules 282—13.18(272) and 282—13.28(272), applicants for endorsements shall have completed a methods class appropriate for teaching the general subject area of the endorsement added.

(2) Practitioners who are adding an elementary or early childhood endorsement and have not student taught on the elementary or early childhood level shall complete a teaching practicum appropriate for teaching at the level of the new endorsement.

(3) Practitioners who are adding a secondary teaching endorsement and have not student taught on the secondary level shall complete a teaching practicum appropriate for teaching at the level of the new endorsement.

(4) Practitioners holding the K-8 endorsement in the content area of the 5-12 endorsement being added may satisfy the requirement for the secondary methods class and the teaching practicum by completing all required coursework and presenting verification of competence. This verification of competence shall be signed by a licensed evaluator who has observed and formally evaluated the performance of the applicant at the secondary level. This verification of competence may be submitted at any time during the term of the Class B license. The practitioner must obtain a Class B license while practicing with the 5-12 endorsement.

13.29(2) *Removal of an endorsement; reinstatement of removed endorsement.*

a. Removal of an endorsement. A practitioner may remove an endorsement from the practitioner's license as follows:

(1) To remove an endorsement, the practitioner shall meet the following conditions:

1. A practitioner who holds a standard or master educator license is eligible to request removal of an endorsement from the license if the practitioner has not taught in the subject or assignment area of the endorsement in the five years prior to the request for removal of the endorsement, and

2. The practitioner must submit a notarized written application form furnished by the board of educational examiners to remove an endorsement at the time of licensure renewal (licensure renewal is limited to one calendar year prior to the expiration date of the current license), and

3. The application must be signed by the superintendent or designee in the district in which the practitioner is under contract. The superintendent's signature shall serve as notification and acknowledgment of the practitioner's intent to remove an endorsement from the practitioner's license. The absence of the superintendent's or designee's signature does not impede the removal process.

(2) The endorsement shall be removed from the license at the time of application.

(3) If a practitioner is not employed and submits an application, the provisions of 13.29(2)*"a"*(1)"3" shall not be required.

(4) If a practitioner submits an application that does not meet the criteria listed in 13.29(2)*"a"*(1)"1" to "3," the application will be rendered void and the practitioner will forfeit the processing fee.

(5) The executive director has the authority to approve or deny the request for removal. Any denial is subject to the appeal process set forth in rule 282—11.35(272).

b. Reinstatement of a removed endorsement.

(1) If the practitioner wants to add the removed endorsement at a future date, all coursework for the endorsement must be completed within the five years preceding the application to add the endorsement.

(2) The practitioner must meet the current endorsement requirements when making application.

[**ARC 8248B**, IAB 11/4/09, effective 10/12/09]

282—13.30(272) Licenses—issue dates, corrections, duplicates, and fraud.

13.30(1) *Issue date on original license.* A license is valid only from and after the date of issuance.

13.30(2) *Correcting licenses.* If a licensee notifies board staff of a typographical or clerical error on the license within 30 days of the date of the board's mailing of a license, a corrected license shall be issued without charge to the licensee. If notification of a typographical or clerical error is made more than 30 days after the date of the board's mailing of a license, a corrected license shall be issued upon receipt of the fee for issuance of a duplicate license. For purposes of this rule, typographical or clerical errors include misspellings, errors in the expiration date of a license, errors in the type of license issued, and the omission or misidentification of the endorsements for which application was made. A licensee requesting the addition of an endorsement not included on the initial application must submit a new application and the appropriate application fee.

13.30(3) *Duplicate licenses.* Upon application and payment of the fee set out in 282—Chapter 12, a duplicate license shall be issued.

13.30(4) *Fraud in procurement or renewal of licenses.* Fraud in procurement or renewal of a license or falsifying records for licensure purposes will constitute grounds for filing a complaint with the board of educational examiners.

These rules are intended to implement Iowa Code chapter 272.

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RACING AND GAMING COMMISSION[491]

[Prior to 11/19/86, Chs 1 to 10, see Racing Commission[693]; Renamed Racing and Gaming Division [195] under the "umbrella" of Commerce, Department of [181], 11/19/86]
[Prior to 12/17/86, Chs 20 to 25, see Revenue Department[730] Chs 91 to 96]
[Transferred from Commerce Department[181] to the Department of Inspections and Appeals "umbrella"[481] pursuant to 1987 Iowa Acts, chapter 234, section 421]
[Renamed Racing and Gaming Commission[491], 8/23/89; See 1989 Iowa Acts, ch 67 §1(2), and ch 231 §30(1), 31]

CHAPTER 1
ORGANIZATION AND OPERATION

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CHAPTER 8
WAGERING AND SIMULCASTING

[Prior to 11/19/86, Racing Commission[693]]
[Prior to 11/18/87, Racing and Gaming Division[195]]

491—8.1(99D) Definitions.

"Administrator" means the administrator or administrator's designee of the Iowa racing and gaming commission.

"Association" means anyone conducting a licensed meet in Iowa.

"Authorized receiver" means a receiver that conducts and operates a pari-mutuel wagering system on the results of contests being held or conducted and simulcast from the enclosures of one or more host associations.

"Betting interest" means a number assigned to a single runner, an entry or a field for wagering purposes.

"Board" means the board of judges or the board of stewards.

"Breakage" means the odd cents by which the amount payable on each dollar wagered in a pari-mutuel pool exceeds a multiple of ten cents. "Breakage" is the net pool minus payoff.

"Commission" means the Iowa racing and gaming commission.

"Commission representative" means an employee of the commission designated to represent them in matters pertaining to the operation of the mutuel department. In the absence of a specifically appointed representative, a commission steward will perform the functions and duties of the commission representative.

"Contest" means a race on which wagers are placed.

"Dead heat" means that two or more runners have tied at the finish line for the same position in the order of finish.

"Double" means a wager to select the winners of two consecutive races and is not a parlay and has no connection with or relation to any other pool conducted by the association and shall not be construed as a "quinella double."

"Entry" means two or more runners are coupled in a contest because of common ties and a wager on one of them shall be a wager on all of them.

"Exacta" (may also be known as "perfecta" or "correcta") means a wager selecting the exact order of finish for first and second in that contest and is not a parlay and has no connection with or relation to any other pool conducted by the association.

"Field" is when the individual runners competing in a contest exceed the numbering capacity of the totalizator and all runners of the higher number shall be grouped together. A wager on one in the field shall be a wager on all. (No "fields" shall be allowed in greyhound racing.)

"Guest association" means an association which offers licensed pari-mutuel wagering on contests conducted by another association (the host) in either the same state or another jurisdiction.

"Host association" means the association conducting a licensed pari-mutuel meeting from which authorized contests or entire performances are simulcast.

"Interstate simulcasting" means the telecast of live audio and visual signals of pari-mutuel racing sent to or received from a state outside the state of Iowa to an authorized racing or gaming facility for the purpose of wagering.

"Intrastate simulcasting" means the telecast of live audio and visual signals of pari-mutuel racing conducted on a licensed pari-mutuel track within Iowa sent to or received from an authorized pari-mutuel facility within Iowa for the purpose of pari-mutuel wagering.

"Law" or *"laws"* means the Iowa Code.

"Minus pool" is when the total amount of money to be returned to the public exceeds what is in the pool because of commission being deducted and the rule stipulation that no mutuel tickets shall be paid at less than $1.10 for each $1.00 wagered.

"Mutuel department" means that area of a racetrack where wagers are made and winning tickets are cashed; where the totalizator is installed and any area used directly in the operation of pari-mutuel wagering.

"Mutuel manager" means an employee of the association who manages the mutuel department.

"Net pool" means the amount remaining in each separate pari-mutuel pool after the takeout percentage, as provided for by Iowa Code section 99D.11, has been deducted.

"No contest" means that a specific race has been declared "no contest" by the stewards in accordance with the pari-mutuel rules and rules of racing for that breed and that certain pools shall be refunded.

"Odds" means the approximate payoffs per dollar based on win pool wagering only on each betting interest for finishing first without a dead heat with another betting interest.

"Official" means that the order of finish for the race is "official" and that payoff prices based upon the "official" order of finish shall be posted.

"Order of finish" means the finishing order of each runner from first place to last place in each race. For horse racing only, the order of finish may be changed by the stewards for a rule infraction prior to posting the "official order of finish."

"Overpayment" is when the payoff to the public resulting from errors in calculating pools and errors occurring in the communication of payoffs results in more money returned to the public than is actually due.

"Pari-mutuel output data" means the data provided by the totalizator other than sales transaction data including, but not limited to, the odds, will pays, race results, and payoff prices.

"Pari-mutuel pool" means the total amount wagered on each separate pari-mutuel pool for payoff purposes.

"Payoff" means the amount distributed to holders of valid winning pari-mutuel tickets in each pool as determined by the official order of finish and includes the amount wagered and profit.

"Pick (n)" means a betting transaction in which a purchaser selects winner(s) of (x) number of contests designated by the association during one racing card.

"Pick three" means a wager to select the winners of three consecutive races and is not a parlay and has no connection with or relation to any other pool conducted by the association.

"Place" means a runner finishing second.

"Place pick (n) pools" means a wager to select the first- or second-place finisher in each of a designated number of contests.

"Place pool" means the total amount of money wagered on all betting interests in each race to finish first or second.

"Post time" is the scheduled starting time for a contest.

"Profit split" is a division of profit among separate winning betting interests or winning betting combinations resulting in two or more payoff prices.

"Quinella" means a wager selecting two runners to finish first and second, regardless of the order of finish, and is not a parlay and has no connection with or relation to any other pool conducted by the association.

"Quinella double" means a wager which consists of selecting the quinella in each of two designated contests and is an entirely separate pool from all other pools and has no connection with or relation to any other pool conducted by the association.

"Runner" means each entrant in a contest, designated by a number as a betting interest.

"Sales transaction data" means the data between totalizator ticket-issuing machines and the totalizator central processing unit for the purpose of accepting wagers and generating, canceling and cashing pari-mutuel tickets and the financial information resulting from processing sales transaction data, such as handle.

"Show" means a runner finishing third.

"Show pool" is the total amount of money wagered on all betting interests in each contest to finish either first, second or third.

"State" means the state of Iowa.

"Stewards" means the board of stewards or board of judges.

"Superfecta" means a wager selecting the exact order of finish for first, second, third, and fourth in that contest and is not a parlay and has no connection with or relation to any other pool conducted by the association.

"Takeout percentage" means the amount authorized by Iowa Code section 99D.11 to be deducted from each separate pari-mutuel pool.

"Totalizator" is a machine for registering wagers, computing odds and payoffs based upon data supplied by each pari-mutuel ticket-issuing machine.

"Tote board" means the board that is used to display to the public the winning approximate odds or approximate payoffs on runner, payoffs, and other pertinent information directly related to a contest.

"Trifecta" means a wager selecting the exact order of finish for first, second, and third in that race and is not a parlay and has no connection with or relation to any other pool conducted by the association.

"Tri-superfecta" means a wager selecting the exact order of finish for first, second and third in the first designated tri-super contest combined with selecting the exact order of finish for first, second, third and fourth in the second designated tri-super contest.

"Twin quinella" means a wager in which the bettor selects the first two finishers, regardless of order, in each of two designated contests. Each winning ticket for the twin quinella must be exchanged for a free ticket on the second twin quinella contest in order to remain eligible for the second-half twin quinella pool.

"Twin superfecta" means a wager in which the bettor selects the first four finishers, in their exact order, in each of two designated contests. Each winning ticket for the first twin superfecta contest must be exchanged for a free ticket on the second twin superfecta contest in order to remain eligible for the second-half twin superfecta pool.

"Twin trifecta" means a wager in which the bettor selects the three runners that will finish first, second, and third in the exact order as officially posted in each of the two designated twin trifecta races.

"Underpayment" is when the payoff to the public resulting from errors in calculating pools and errors occurring in the communication in payoffs results in less money returned to the public than is actually due.

"Win" means a runner finishing first.

"Win pool" means the total amount wagered on all betting interests in each contest to finish first.

491—8.2(99D) General.

8.2(1) *Wagering.* Each association shall conduct wagering in accordance with applicable laws and these rules. Such wagering shall employ a pari-mutuel system approved by the commission. The totalizator shall be tested prior to and during the meeting as required by the commission. All systems of wagering other than pari-mutuel, such as bookmaking and auction-pool selling, are prohibited and any person attempting to participate in prohibited wagering shall be ejected or excluded from association grounds.

8.2(2) *Records.* The association shall maintain records of all wagering so the commission may review such records for any contest including the opening line, subsequent odds fluctuation, the amount and at which window wagers were placed on any betting interest and such other information as may be required. Such wagering records shall be retained by each association and safeguarded for a period of time specified by the commission. The commission may require that certain of these records be made available to the wagering public at the completion of each contest.

The association shall provide the commission with a list of the licensed individuals afforded access to pari-mutuel records and equipment at the wagering facility.

8.2(3) *Pari-mutuel tickets.* A pari-mutuel ticket is evidence of a contribution to the pari-mutuel pool operated by the association and is evidence of the obligation of the association to pay to the holder thereof such portion of the distributable amount of the pari-mutuel pool as is represented by such valid pari-mutuel ticket. The association shall cash all valid winning tickets when such are presented for payment during the course of the meeting where sold, and for a specified period after the last day of the meeting, as provided in paragraph 8.2(4)*"g."*

a. To be deemed a valid pari-mutuel ticket, such ticket shall have been issued by a pari-mutuel ticket machine operated by the association and recorded as a ticket entitled to a share of the pari-mutuel pool, and contain imprinted information as to:

(1) The name of the association operating the meeting.

(2) A unique identifying number or code.

(3) Identification of the terminal at which the ticket was issued.

(4) A designation of the performance for which the wagering transaction was issued.

(5) The contest number for which the pool is conducted.

(6) The type(s) of wagers represented.

(7) The number(s) representing the betting interests for which the wager is recorded.

(8) The amount(s) of the contributions to the pari-mutuel pool or pools for which the ticket is evidence.

b. No pari-mutuel ticket recorded or reported as previously paid, canceled, or nonexistent shall be deemed a valid pari-mutuel ticket by the association. The association may withhold payment and refuse to cash any pari-mutuel ticket deemed not valid, except as provided in paragraph 8.2(4)*"e."*

8.2(4) *Pari-mutuel ticket sales.*

a. Pari-mutuel tickets shall not be sold by anyone other than an association licensed to conduct pari-mutuel wagering.

b. No pari-mutuel ticket may be sold on a contest for which wagering has already been closed and no association shall be responsible for ticket sales entered into but not completed by issuance of a ticket before the totalizator is closed for wagering on such contest.

c. Claims pertaining to a mistake on an issued or unissued ticket must be made by the bettor prior to leaving the seller's window.

d. Payment on winning pari-mutuel wagers shall be made on the basis of the order of finish as purposely posted and declared "official." Any subsequent change in the order of finish or award of purse money(s) as may result from a subsequent ruling by the stewards or administrator shall in no way affect the pari-mutuel payoff. If an error in the posted order of finish or payoff figures is discovered, the official order of finish or payoff prices may be corrected and an announcement concerning the change shall be made to the public.

e. The association shall not satisfy claims on lost, mutilated, or altered pari-mutuel tickets without authorization from the administrator.

f. The association shall have no obligation to enter a wager into a betting pool if unable to do so due to equipment failure.

g. Payment on valid pari-mutuel tickets shall be made only upon presentation and surrender to the association where the wager was made within 60 days following the close of the meet during which the wager was made. Failure to present any such ticket within 60 days shall constitute a waiver of the right to receive payment.

8.2(5) *Advance performance wagering.* No association shall permit wagering to begin more than one hour before scheduled post time of the first contest of a performance unless it has first obtained the authorization of the administrator.

8.2(6) *Claims for payment from pari-mutuel pool.* At a designated location, a written, verified claim for payment from a pari-mutuel pool shall be accepted by the association in any case where the association has withheld payment or has refused to cash a pari-mutuel wager. The claim shall be made on such form as approved by the administrator, and the claimant shall make such claim under penalty of perjury. The original of such claim shall be forwarded to the administrator within 48 hours.

a. In the case of a claim made for payment of a mutilated pari-mutuel ticket which does not contain the total imprinted elements required in paragraph 8.2(3)*"a"* of these general provisions, the association shall make a recommendation to accompany the claim forwarded to the administrator as to whether or not the mutilated ticket has sufficient elements to be positively identified as a winning ticket.

b. In the case of a claim made for payment on a pari-mutuel wager, the administrator shall adjudicate the claim and may order payment thereon from the pari-mutuel pool or by the association, or may deny the claim, or may make such other order as the administrator may deem proper.

8.2(7) *Payment for errors.* If an error occurs in the payment amounts for pari-mutuel wagers which are cashed or entitled to be cashed; and as a result of such error the pari-mutuel pool involved in the error is not correctly distributed among winning ticket holders, the following shall apply:

a. Verification is required to show that the amount of the commission, the amount in breakage, and the amount in payoffs are equal to the total gross pool. If the amount of the pool is more than the amount used to calculate the payoff, the underpayment shall be added to the corresponding pool of the next contest. If an underpayment is discovered after the close of the meeting, the underpayment shall be held in an interest-bearing account approved by the administrator until being added, together with accrued interest, to the corresponding pool of the next meet.

b. Any claim not filed with the association within 30 days, inclusive of the date on which the underpayment was publicly announced, shall be deemed waived; and the association shall have no further liability therefor.

c. In the event the error results in an overpayment to winning wagers, the association shall be responsible for such payment.

8.2(8) *Betting explanation.* A summary explanation of pari-mutuel wagering and each type of betting pool offered shall be published in the program for every wagering performance. The rules of racing relative to each type of pari-mutuel pool offered must be prominently displayed on association grounds and available upon request through association representatives.

8.2(9) *Display of betting information.*

a. Approximate odds for win pool betting shall be posted on display devices within view of the wagering public and updated at intervals of not more than 90 seconds.

b. The probable payoff or amounts wagered, in total and on each betting interest, for other pools may be displayed to the wagering public at intervals and in a manner approved by the administrator.

c. Official results and payoffs must be displayed upon each contest being declared official.

8.2(10) *Canceled contests.* If a contest is canceled or declared "no contest," refunds shall be granted on valid wagers in accordance with these rules.

8.2(11) *Refunds.*

a. Notwithstanding other provisions of these rules, refunds of the entire pool shall be made on:

(1) Win pools, exacta pools, and first-half double pools offered in contests in which the number of betting interests has been reduced to fewer than two.

(2) Place pools, quinella pools, trifecta pools, first-half quinella double pools, first-half twin quinella pools, first-half twin trifecta pools, and first-half tri-superfecta pools offered in contests in which the number of betting interests has been reduced to fewer than three.

(3) Show pools, superfecta pools, and first-half twin superfecta pools offered in contests in which the number of betting interests has been reduced to fewer than four.

b. Authorized refunds shall be paid upon presentation and surrender of the affected pari-mutuel ticket.

8.2(12) *Coupled entries and mutuel fields.*

a. Contestants coupled in wagering as a coupled entry or mutuel field shall be considered part of a single betting interest for the purpose of price calculations and distribution of pools. Should any contestant in a coupled entry or mutuel field be officially withdrawn or scratched, the remaining contestants in that coupled entry or mutuel field shall remain valid betting interests and no refunds will be granted. If all contestants within a coupled entry or mutuel field are scratched, then tickets on such betting interests shall be refunded, notwithstanding other provisions of these rules.

b. For the purpose of price calculations only, coupled entries and mutuel fields shall be calculated as a single finisher, using the finishing position of the leading contestant in that coupled entry or mutuel field to determine order of placing. This rule shall apply to all circumstances, including situations involving a dead heat, except as otherwise provided by these rules.

8.2(13) *Pools dependent upon betting interests.* Unless the administrator otherwise provides, at the time the pools are opened for wagering, the association:

a. May offer win, place, and show wagering on all contests with six or more betting interests.

b. May be allowed to prohibit show wagering on any contest with five or fewer betting interests scheduled to start.

c. May be allowed to prohibit place wagering on any contest with four or fewer betting interests scheduled to start.

d. May be allowed to prohibit quinella wagering on any contest with three or fewer betting interests scheduled to start.

e. May be allowed to prohibit quinella double wagering on any contests with three or fewer betting interests scheduled to start.

f. May be allowed to prohibit exacta wagering on any contest with three or fewer betting interests scheduled to start.

g. Shall prohibit trifecta wagering on any contest with five or fewer betting interests scheduled to start, or as provided in (1) below:

(1) Cancel trifecta. The stewards have the authority to cancel trifecta wagering at any time they determine an irregular pattern of wagering or determine that the conduct of the race would not be in the interest of the regulation of the pari-mutuel wagering industry or in the public confidence in racing. The stewards may approve smaller fields for trifecta wagering if extraneous circumstances are shown by the licensee.

(2) Reserved.

h. May prohibit superfecta wagering on any contest with seven or fewer betting interests scheduled to start.

i. May be allowed to prohibit twin quinella wagering on any contests with three or fewer betting interests scheduled to start.

j. May prohibit twin trifecta wagering on any contests with seven or fewer betting interests scheduled to start, except as provided in 8.2(13)*"g"*(1).

k. May prohibit tri-superfecta wagering on any contests with seven or fewer betting interests scheduled to start.

l. May prohibit twin superfecta wagering on any contests with seven or fewer betting interests scheduled to start.

8.2(14) *Prior approval required for betting pools.*

a. An association that desires to offer new forms of wagering must apply in writing to the administrator and receive written approval prior to implementing the new betting pool.

b. The association may suspend previously approved forms of wagering with the prior approval of the administrator. Any carryover shall be held until the suspended form of wagering is reinstated. An association may request approval of a form of wagering or separate wagering pool for specific requirements.

8.2(15) *Closing of wagering in a contest.*

a. A commission representative shall close wagering for each contest after which time no pari-mutuel tickets shall be sold for that contest. All wagering shall stop and all pari-mutuel machines shall be locked at post time or at the actual start of the races. Machines shall be automatically locked by the stewards, unless unusual circumstances dictate the stewards to act differently.

b. The association shall maintain, in good order, a system approved by the administrator for closing wagering.

8.2(16) *Complaints pertaining to pari-mutuel operations.*

a. When a patron makes a complaint regarding the pari-mutuel department to an association, the association shall immediately issue a complaint report, setting out:

(1) The name of the complainant;

(2) The nature of the complaint;

(3) The name of the persons, if any, against whom the complaint was made;

(4) The date of the complaint;

(5) The action taken or proposed to be taken, if any, by the association.

b. The association shall submit every complaint report to the commission within five days after the complaint was made.

8.2(17) *Licensed employees.* All licensees shall report any known irregularities or wrongdoings by any person involving pari-mutuel wagering immediately to the administrator and cooperate in subsequent investigations.

8.2(18) *Unrestricted access.* The association shall permit the commission unrestricted access at all times to its facilities and equipment and to all books, ledgers, accounts, documents and records of the association that relate to pari-mutuel wagering.

8.2(19) *Totalizator breakdown.* In the event of irreparable breakdown of the totalizator during the wagering on a race, the wagering on that race shall be declared closed and the payoff shall be computed on the sums wagered in each pool up to the time of the breakdown.

8.2(20) *Minimum wager and payoff.* The minimum wager to be accepted by any licensed association for win, place and show wagering shall be $2. The minimum payoff on a $2 wager shall be $2.20. For all other wagers, the minimum wager to be accepted by any licensed association shall be $1. The minimum payoff for a $1 wager shall be $1.10. Any deviation from this must be approved by the administrator. In cases where a minus pool occurs, the association is responsible for the payment of the minimum payoff and no breakage shall be incurred from that pari-mutuel pool.

8.2(21) *Minors prohibited from wagering.* No minor shall be permitted by any licensed association to purchase or cash a pari-mutuel ticket.

8.2(22) *Emergency situations.* In the event of an emergency in connection with the pari-mutuel department not covered in these rules, the pari-mutuel manager representing the association shall report the problem to the stewards and the association and the stewards shall render a full report to the administrator within 48 hours.

8.2(23) *Commission mutuel supervisor.* The commission may employ a mutuel supervisor with accounting experience to serve as the commission's designated representative at each race meeting as provided in Iowa Code section 99D.19. In the absence of a specifically appointed commission mutuel supervisor, the board of stewards or simulcast steward will perform the functions and duties of the commission.

491—8.3(99D) Calculation of payoffs and distribution of pools.

8.3(1) *Pools permitted.* All permitted pari-mutuel wagering pools shall be separately and independently calculated and distributed. The pari-mutuel wagering pools permitted in this state shall be for win, place, show, double, exacta, trifecta, tri-super, twin-trifecta, superfecta, quinella, quinella double, twin quinella, pick (3), and pick (n), place pick (n), each with separate and independent calculation and distribution. Takeout shall be deducted from each gross pool as stipulated by Iowa Code section 99D.11. The remainder of the moneys in the pool shall constitute the net pool for distribution as payoff on winning wagers.

a. For each wagering pool, the amount wagered on the winning betting interest or betting combinations is deducted from the net pool to determine the profit; the profit is then divided by the amount wagered on the winning betting interest or combinations, such quotient being the profit per dollar.

b. Either the standard or net price calculation procedure may be used to calculate single commission pools, while the net price calculation procedure must be used to calculate multicommission pools.

(1) Standard price calculation procedure.

SINGLE PRICE POOL (WIN POOL)

Gross pool	=	sum of wagers on all betting interests – refunds
Takeout	=	gross pool × percent takeout
Net pool	=	gross pool – takeout
Profit	=	net pool – gross amount bet on winner
Profit per dollar	=	profit/gross amount bet on winner
$1 unbroken price	=	profit per dollar + $1
$1 broken price	=	$1 unbroken price rounded down to the break point
Total payout	=	$1 broken price × gross amount bet on winner
Total breakage	=	net pool – total payout

PROFIT SPLIT (PLACE POOL)

Profit is net pool less gross amount bet on all place finishers. Finishers split profit ½ and ½ (place profit), then divide by gross amount bet on each place finisher for two unique prices.

PROFIT SPLIT (SHOW POOL)

Profit is net pool less gross amount bet on all show finishers. Finishers split profit 1/3 and 1/3 and 1/3 (show profit), then divide by gross amount bet on each show finisher for three unique prices.

(2) Net price calculation procedure.

SINGLE PRICE POOL (WIN POOL)

Gross pool	=	sum of wagers on all betting interests – refunds
Takeout	=	gross pool × percent takeout
For each source:		
Net pool	=	gross pool – takeout
Net bet on winner	=	gross amount bet on winner × (1 percent takeout)
Total net pool	=	sum of all sources net pools
Total net bet on winner	=	sum of all sources net bet on winner
Total profit	=	total net pool – total net bet on winner
Profit per dollar	=	total profit/total net bet on winner
$1 unbroken base price	=	profit per dollar + $1
For each source:		
$1 unbroken price	=	$1 unbroken base price × (1 percent takeout)
$1 broken price	=	$1 unbroken price rounded down to the break point
Total payout	=	$1 broken price × gross amount bet on winner
Total breakage	=	net pool – total payout

PROFIT SPLIT (PLACE POOL)

Total profit is the total net pool less the total net amount bet on all place finishers. Finishers split total profit ½ and ½ (place profit), then divide by total net amount bet on each place finisher for two unique unbroken base prices.

PROFIT SPLIT (SHOW POOL)

Total profit is the total net pool less the total net amount bet on all show finishers. Finishers split total profit 1/3 and 1/3 and 1/3 (show profit), then divide by total net amount bet on each show finisher for three unique unbroken base prices.

c. If a profit split results in only one covered winning betting interest or combination, it shall be calculated the same as a single-price pool.

d. Minimum payoffs and the method used for calculating breakage shall be established by the administrator.

e. The individual pools outlined in these rules may be given alternative names by each association, provided prior approval is obtained from the administrator.

8.3(2) *Win pools.*

a. The amount wagered on the betting interest which finishes first is deducted from the net pool, the balance remaining being the profit; the profit is divided by the amount wagered on the betting interest finishing first, such quotient being the profit-per-dollar wagered to win on that betting interest.

b. The net win pool shall be distributed as a single-price pool to winning wagers in the following precedence, based upon the official order of finish:

(1) To those whose selection finished first; but if there are no such wagers, then

(2) To those whose selection finished second; but if there are no such wagers, then

(3) To those whose selection finished third; but if there are no such wagers, then

(4) The entire pool shall be refunded on win wagers for that contest.

c. If there is a dead heat for first involving:

(1) Contestants representing the same betting interest, the win pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the win pool shall be distributed as a profit split.

Table 1: WIN POOL

(Standard Price Calculation)

Sum of wagers on all betting interests =	$194,230.00
Refunds =	$1,317.00
Gross pool:	
Sum of wagers on all betting interests – refunds = ($194,230.00 – $1,317.00)	$192,913.00
Percent takeout =	18%
Takeout: Gross pool × percent takeout = ($192,913.00 × 18%)	$34,724.34
Net pool:	
Gross pool – takeout = ($192,913.00 – $34,724.34)	$158,188.66
Gross amount bet on winner =	$23,872.00
Profit:	
Net pool – gross amount bet on winner = ($158,188.66 – $23,872.00)	$134,316.66
Profit per dollar:	
Profit/gross amount bet on winner = ($134,316.66/$23,872.00)	$5.6265357
$1 unbroken price:	
Profit per dollar + $1 = ($5.6265357 + $1)	$6.6265357
Round off to nearest $0.05 =	$0.0265357
$1 broken price:	
$1 unbroken price – round off to nearest $1.10 =	$6.60

Total payout:	
$1 broken price × gross amount bet on winner = ($6.60 × $23,872.00)	$157,555.20
Total breakage:	
Net pool – total payout = ($158,188.66 – $157,555.20)	$633.46
$2 broken price:	
$1 broken price × 2 = ($6.60 × 2)	$13.20

8.3(3) *Place pools.*

a. The amounts wagered to place on the first two betting interests to finish are deducted from the net pool, the balance remaining being the profit; the profit is divided into two equal portions, one being assigned to each winning betting interest and divided by the amount wagered to place on that betting interest, the resulting quotient being profit per dollar wagered to place on that betting interest.

b. The net place pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) If contestants of a coupled entry or mutuel field finished in the first two places, as a single-price pool to those who selected the coupled entry or mutuel field; otherwise

(2) As a profit split to those whose selection is included within the first two finishers; but if there are no such wagers on one of those two finishers, then

(3) As a single-price pool to those who selected the one covered betting interest included within the first two finishers; but if there are no such wagers, then

(4) As a single-price pool to those who selected the third-place finisher; but if there are no such wagers, then

(5) The entire pool shall be refunded on place wagers for that contest.

c. If there is a dead heat for first involving:

(1) Contestants representing the same betting interest, the place pool shall be distributed as a single-price pool.

(2) Contestants representing two or more betting interests, the place pool shall be distributed as a profit split.

d. If there is a dead heat for second involving:

(1) Contestants representing the same betting interest, the place pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the place pool is divided with one-half of the profit distributed to place wagers on the betting interest finishing first and the remainder is distributed equally among place wagers on those betting interests involved in the dead heat for second.

Table 2: PLACE POOL
(Standard Price Calculation)

Sum of wagers on all betting interests =	$194,230.00
Refunds =	$1,317.00
Gross pool:	
Sum of wagers on all betting interests – refunds =	$192,913.00
Percent takeout =	18%
Takeout: Gross pool × percent takeout =	$34,724.34
Net pool:	
Gross pool – takeout =	$158,188.66
Gross amount bet on 1st place finisher =	$23,872.00

Gross amount bet on 2nd place finisher =	$12,500.00
Profit:	
Net pool – gross amount bet on 1st place finisher	
– gross amount bet on 2nd place finisher =	$121,816.66
Place profit:	
Profit/2 =	$60,908.33
Profit per dollar for 1st place:	
Place profit/gross amount bet on 1st place finisher =	$2.5514548
$1 unbroken price for 1st place:	
Profit per dollar for 1st place + $1 =	$3.5514548
Profit per dollar for 2nd place:	
Place profit/gross amount bet on 2nd place finisher =	$4.8726664
$1 unbroken price for 2nd place:	
Profit per dollar for 2nd place + $1 =	$5.8726664

8.3(4) *Show pools.*

a. The amounts wagered to show on the first three betting interests to finish are deducted from the net pool, the balance remaining being the profit; the profit is divided into three equal portions, one being assigned to each winning betting interest and divided by the amount wagered to show on that betting interest, the resulting quotient being the profit per dollar wagered to show on that betting interest.

b. The net show pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) If contestants of a coupled entry or mutuel field finished in the first three places, as a single price pool to those who selected the coupled entry or mutuel field; otherwise

(2) If contestants of a coupled entry or mutuel field finished as two of the first three finishers, the profit is divided with two-thirds distributed to those who selected the coupled entry or mutuel field and one-third distributed to those who selected the other betting interest included within the first three finishers; otherwise

(3) As a profit split to those whose selection is included within the first three finishers; but if there are no such wagers on one of those finishers, then

(4) As a profit split to those who selected one of the two covered betting interests included within the first three finishers; but if there are no such wagers on two of those three finishers, then

(5) As a single-price pool to those who selected the one covered betting interest included within the first three finishers; but if there are no such wagers, then

(6) As a single-price pool to those who selected the fourth-place finisher; but if there are no such wagers, then

(7) The entire pool shall be refunded on show wagers for that contest.

c. If there is a dead heat for first involving:

(1) Two contestants representing the same betting interest, the profit is divided with two-thirds distributed to those who selected the first-place finishers and one-third distributed to those who selected the betting interest finishing third.

(2) Three contestants representing a single betting interest, the show pool shall be distributed as a single-price pool.

(3) Contestants representing two or more betting interests, the show pool shall be distributed as a profit split.

d. If there is a dead heat for second involving:

(1) Contestants representing the same betting interest, the profit is divided with one-third distributed to those who selected the betting interest finishing first and two-thirds distributed to those who selected the second-place finishers.

(2) Contestants representing two betting interests, the show pool shall be distributed as a profit split.

(3) Contestants representing three betting interests, the show pool is divided with one-third of the profit distributed to show wagers on the betting interest finishing first and the remainder is distributed equally among show wagers on those betting interests involved in the dead heat for second.

e. If there is a dead heat for third involving:

(1) Contestants representing the same betting interest, the show pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the show pool is divided with two-thirds of the profit distributed to show wagers on the betting interests finishing first and second and the remainder is distributed equally among show wagers on those betting interests involved in the dead heat for third.

Table 3: SHOW POOL
(Standard Price Calculation)

Sum of wagers on all betting interests =	$194,230.00
Refunds =	$1,317.00
Gross pool:	
Sum of wagers on all betting interests – refunds =	$192,913.00
Percent takeout =	18%
Takeout:	
Gross pool × percent takeout =	$34,724.34
Net pool:	
Gross pool – takeout =	$158,188.66
Gross amount bet on 1st place finisher =	$23,872.00
Gross amount bet on 2nd place finisher =	$12,500.00
Gross amount bet on 3rd place finisher =	$4,408.00
Profit:	
Net pool – gross amount bet on 1st place finisher – gross amount bet on 2nd place finisher – gross amount bet on 3rd place finisher =	$117,408.66
Show profit:	
Profit/3 =	$39,136.22
Profit per dollar for 1st place:	
Show profit/gross amount bet on 1st place finisher =	$1.6394194
$1 unbroken price for 1st place:	
Profit per dollar for 1st place + $1 =	$2.6394194
Profit per dollar for 2nd place:	
Show profit/gross amount bet on 2nd place finisher =	$3.1308976
$1 unbroken price for 2nd place:	
Profit per dollar for 2nd place + $1 =	$4.1308976
Profit per dollar for 3rd place:	
Show profit/gross amount bet on 3rd place finisher =	$8.8784528
$1 unbroken price for 3rd place:	
Profit per dollar for 3rd place + $1 =	$9.8784528

Table 4: SHOW POOL
Single Takeout Rate & Single Betting Source
(Single Price Calculation)

Sum of wagers on all betting interests =	$194,230.00
Refunds =	$1,317.00
Gross pool:	
Sum of wagers on all betting interests – refunds =	$192,913.00
Takeout:	
Gross pool × percent takeout =	$34,724.34
Percent takeout =	18%
Total net pool:	
Gross pool – takeout =	$158,188.66
Gross amount bet on 1st place finisher =	$23,872.00
Net amount bet on 1st place finisher =	$19,575.04
Gross amount bet on 2nd place finisher =	$12,500.00
Net amount bet on 2nd place finisher =	$10,250.00
Gross amount bet on 3rd place finisher =	$4,408.00
Net amount bet on 3rd place finisher =	$3,614.56
Total net bet on winners:	
Net amount bet on 1st place finisher +	
Net amount bet on 2nd place finisher +	
Net amount bet on 3rd place finisher =	$33,439.60
Total profit:	
Total net pool – total net bet on winners =	$124,749.06
Show profit:	
Total profit/3 =	$41,583.02
Profit per dollar for 1st place:	
Show profit/net amount bet on 1st place finisher =	$2.1242879
$1 unbroken base price for 1st place:	
Profit per dollar for 1st place + $1 =	$3.1242879
$1 unbroken price for 1st place:	
$1 unbroken base price for 1st place ×	
(1 percent takeout) =	$2.5619161
Profit per dollar for 2nd place:	
Show profit/net amount bet on 2nd place finisher =	$.0568800
$1 unbroken base price for 2nd place:	
Profit per dollar for 2nd place + $1 =	$5.0568800
$1 unbroken price for 2nd place:	
$1 unbroken base price for 2nd place ×	
(1 percent takeout) =	$4.1466416
Profit per dollar for 3rd place:	
Show profit/net amount bet on 3rd place finisher =	$11.504310
$1 unbroken base price for 3rd place:	
Profit per dollar for 3rd place + $1 =	$12.504310
$1 unbroken price for 3rd place:	
$1 unbroken base price for 3rd place ×	
(1 percent takeout) =	$10.253534

8.3(5) *Double pools.*

a. The double requires selection of the first-place finisher in each of two specified contests.

b. The net double pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) As a single-price pool to those whose selection finished first in each of the two contests; but if there are no such wagers, then

(2) As a profit split to those who selected the first-place finisher in either of the two contests; but if there are no such wagers, then

(3) As a single-price pool to those who selected the one covered first-place finisher in either contest; but if there are no such wagers, then

(4) As a single-price pool to those whose selection finished second in each of the two contests; but if there are no such wagers, then

(5) The entire pool shall be refunded on double wagers for those contests.

c. If there is a dead heat for first in either of the two contests involving:

(1) Contestants representing the same betting interest, the double pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the double pool shall be distributed as a profit split if there is more than one covered winning combination.

d. Should a betting interest in the first half of the double be scratched prior to the first double contest being declared official, all money wagered on combinations including the scratched betting interest shall be deducted from the double pool and refunded.

e. Should a betting interest in the second half of the double be scratched prior to the close of wagering on the first double contest, all money wagered on combinations including the scratched betting interest shall be deducted from the double pool and refunded.

f. Should a betting interest in the second half of the double be scratched after the close of wagering on the first double contest, all wagers combining the winner of the first contest with the scratched betting interest in the second contest shall be allocated a consolation payoff. In calculating the consolation payoff the net double pool shall be divided by the total amount wagered on the winner of the first contest and an unbroken consolation price obtained. The broken consolation price is multiplied by the dollar value of wagers on the winner of the first contest combined with the scratched betting interest to obtain the consolation payoff. Breakage is not declared in this calculation. The consolation payoff is deducted from the net double pool before calculation and distribution of the winning double payoff. Dead heats including separate betting interests in the first contest shall result in a consolation payoff calculated as a profit split.

g. If either of the double contests is canceled prior to the first double contest, or the first double contest is declared "no contest," the entire double pool shall be refunded on double wagers for those contests.

h. If the second double contest is canceled or declared "no contest," after the conclusion of the first double contest, the net double pool shall be distributed as a single-price pool to wagers selecting the winner of the first double contest. In the event of a dead heat involving separate betting interests, the net double pool shall be distributed as a profit split.

Table 5: DOUBLE POOL
(Standard Price Calculation)

Sum of wagers on all betting interests =	$194,230.00
Refunds =	$1,317.00
Gross pool: Sum of wagers on all betting interests – refunds =	$192,913.00
Percent takeout =	18%
Takeout: Gross pool × percent takeout =	$34,724.34
Net pool: Gross pool – takeout =	$158,188.66
Gross amount bet on winning combination =	$23,872.00
Profit: Net pool – gross amount bet on winning combination =	$134,316.66
Profit per dollar: Profit/gross amount bet on winning combination =	$5.6265357
$1 unbroken price: Profit per dollar + $1 =	$6.6265357

Table 6: DOUBLE POOL
CONSOLATION PRICING

Sum of wagers on all betting interests =	$194,230.00
Refunds =	$1,317.00
Gross pool: Sum of wagers on all betting interests – refunds =	$192,913.00
Percent takeout =	18%
Takeout: Gross pool × percent takeout =	$34,724.34
Net pool: Gross pool – takeout =	$158,188.66
Consolation pool: Sum total amount bet on winner of the first contest with all second contest betting interests =	$43,321.00
$1 consolation unbroken consolation price: Net pool/consolation pool =	$3.6515468
$1 consolation broken price =	$3.65
Amount bet on winner of the first contest with scratched betting interests:	$1,234.00
Consolation liability: $1 consolation broken price × (amount bet on the winner of the first contest with scratched betting interests) =	$4,504.10
Adjusted net pool: Net pool – consolation liability =	$153,684.56
Gross amount bet on the winning combination =	$23,872.00
Profit: Adjusted net pool – gross amount bet on the winning combination =	$129,812.56
Profit per dollar: Profit/gross amount bet on the winning combination =	$5.4378586
$1 unbroken price: Profit per dollar + $1 =	$6.4378586

8.3(6) *Pick three pools.*

a. The pick three requires selection of the first-place finisher in each of three specified contests.

b. The net pick three pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) As a single-price pool to those whose selection finished first in each of the three contests; but if there are no such wagers, then

(2) As a single-price pool to those who selected the first-place finisher in any two of the three contests; but if there are no such wagers, then

(3) As a single-price pool to those who selected the first-place finisher in any one of the three contests; but if there are no such wagers, then

(4) The entire pool shall be refunded on pick three wagers for those contests.

c. If there is a dead heat for first in any of the three contests involving:

(1) Contestants representing the same betting interest, the pick three pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the pick three pool shall be distributed as a single-price pool with each winning wager receiving an equal share of the profit.

d. Should a betting interest in any of the three pick three contests be scratched, the actual favorite, as evidenced by total amounts wagered in the win pool at the close of wagering on that contest, shall be substituted for the scratched betting interest for all purposes, including pool calculations. In the event that the win-pool total for two or more favorites is identical, the substitute selection shall be the betting interest with the lowest program number. The totalizator shall produce reports showing each of the wagering combinations with substituted betting interests which became winners as a result of the substitution, in addition to the normal winning combination.

e. If all three pick three contests are canceled or declared "no contest," the entire pool shall be refunded on pick three wagers for those contests.

f. If one or two of the pick three contests are canceled or declared "no contest," the pick three pool will remain valid and shall be distributed in accordance with 8.3(6)*"b."*

8.3(7) *Pick (n) pool.*

a. The pick (n) requires selection of the first-place finisher in each of a designated number of contests. The association must obtain written approval from the administrator concerning the scheduling of pick (n) contests, the designation of one of the methods prescribed in 8.3(7)*"b,"* and the amount of any cap to be set on the carryover. Any changes to the approved pick (n) format require prior approval from the administrator.

b. The pick (n) pool shall be apportioned under one of the following methods:

(1) Method 1, pick (n) with carryover. The net pick (n) pool and carryover, if any, shall be distributed as a single-price pool to those who selected the first-place finisher in each of the pick (n) contests, based upon the official order of finish. If there are no such wagers, then a designated percentage of the net pool shall be distributed as a single-price pool of those who selected the first-place finisher in the greatest number of pick (n) contests; and the remainder shall be added to the carryover.

(2) Method 2, pick (n) with minor pool and carryover. The major share of the net pick (n) pool and the carryover, if any, shall be distributed to those who selected the first-place finisher in each of the pick (n) contests, based upon the official order of finish. The minor share of the net pick (n) pool shall be distributed to those who selected the first-place finisher in the second greatest number of pick (n) contests, based upon the official order of finish. If there are no wagers selecting the first-place finisher of all pick (n) contests, the minor share of the net pick (n) pool shall be distributed as a single-price pool to those who selected the first-place finisher in the greatest number of pick (n) contests; and the major share shall be added to the carryover.

(3) Method 3, pick (n) with no minor pool and no carryover. The net pick (n) pool shall be distributed as a single-price pool to those who selected the first-place finisher in the greatest number of pick (n) contests, based upon the official order of finish. If there are no winning wagers, the pool is refunded.

(4) Method 4, pick (n) with minor pool and no carryover. The major share of the net pick (n) pool shall be distributed to those who selected the first-place finisher in the greatest number of pick (n) contests, based upon the official order of finish. The minor share of the net pick (n) pool shall be distributed to those who selected the first-place finisher in the second greatest number of pick (n) contests, based upon the official order of finish. If there are no wagers selecting the first-place finisher in a second greatest number of pick (n) contests, the minor share of the net pick (n) pool shall be combined with the major share for distribution as a single-price pool to those who selected the first-place finisher in the greatest number of pick (n) contests. If the greatest number of first-place finishers selected is one, the major and minor shares are combined for distribution as a single-price pool. If there are no winning wagers, the pool is refunded.

(5) Method 5, pick (n) with minor pool and no carryover. The major share of net pick (n) pool shall be distributed to those who selected the first-place finisher in each of the pick (n) contests, based upon the official order of finish. The minor share of the net pick (n) pool shall be distributed to those who selected the first-place finisher in the second greatest number of pick (n) contests, based upon the official order of finish. If there are no wagers selecting the first-place finisher in all pick (n) contests, the entire net pick (n) pool shall be distributed as a single-price pool to those who selected the first-place finisher in the greatest number of pick (n) contests. If there are no wagers selecting the first-place finisher in a second greatest number of pick (n) contests, the minor share of the net pick (n) pool shall be combined with the major share for distribution as a single-price pool to those who selected the first-place finisher in each of the pick (n) contests. If there are no winning wagers, the pool is refunded.

c. If there is a dead heat for first in any of the pick (n) contests involving:

(1) Contestants representing the same betting interest, the pick (n) pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the pick (n) pool shall be distributed as a single-price pool with each winning wager receiving an equal share of the profit.

d. Should a betting interest in any of the pick (n) contests be scratched, the actual favorite, as evidenced by total amounts wagered in the win pool at the host association for the contest at the close of wagering on that contest, shall be substituted for the scratched betting interest for all purposes, including pool calculations. In the event that the win pool total for two or more favorites is identical, the substitute selection shall be the betting interest with the lowest program number. The totalizator shall produce reports showing each of the wagering combinations with substituted betting interests which became winners as a result of the substitution, in addition to the normal winning combination.

e. The pick (n) pool shall be canceled and all pick (n) wagers for the individual performance shall be refunded if:

(1) At least two contests included as part of the pick three are canceled or declared "no contest."

(2) At least three contests included as part of a pick four, pick five, or pick six are canceled or declared "no contest."

(3) At least four contests included as part of a pick seven, pick eight, or pick nine are canceled or declared "no contest."

(4) At least five contests included as part of a pick ten are canceled or declared "no contest."

f. If at least one contest included as part of a pick (n) is canceled or declared "no contest," but not more than the number specified in 8.3(7)*"e,"* the net pool shall be distributed as a single-price pool to those whose selection finished first in the greatest number of pick (n) contests for that performance. Such distribution shall include the portion ordinarily retained for the pick (n) carryover but not the carryover from previous performances.

g. The pick (n) carryover may be capped at a designated level approved by the administrator so that if, at the close of any performance, the amount in the pick (n) carryover equals or exceeds the designated cap, the pick (n) carryover will be frozen until it is won or distributed under other provisions of this rule. After the pick (n) carryover is frozen, 100 percent of the net pool, part of which ordinarily would be added to the pick (n) carryover, shall be distributed to those whose selection finished first in the greatest number of pick (n) contests for that performance.

h. A written request for permission to distribute the pick (n) carryover on a specific performance may be submitted to the administrator. The request must contain justification for the distribution, an explanation of the benefit to be derived, and the intended date and performance for the distribution.

i. Should the pick (n) carryover be designated for distribution on a specified date and performance in which there are no wagers selecting the first-place finisher in each of the pick (n) contests, the entire pool shall be distributed as a single-price pool to those whose selection finished first in the greatest number of pick (n) contests. The pick (n) carryover shall be designated for distribution on a specified date and performance only under the following circumstances:

(1) Upon written approval from the administrator as provided in 8.3(7)*"h."*

(2) Upon written approval from the administrator when there is a change in the carryover cap, a change from one type of pick (n) wagering to another, or when the pick (n) is discontinued.

(3) On the closing performance of the meet or split meet.

j. If, for any reason, the pick (n) carryover must be carried over to the corresponding pick (n) pool of a subsequent meet, the carryover shall be deposited in an interest-bearing account approved by the administrator. The pick (n) carryover plus accrued interest shall then be added to the net pick (n) pool of the following meet on a date and performance so designated by the administrator.

k. With the written approval of the administrator, the association may contribute to the pick (n) carryover a sum of money up to the amount of any designated cap.

l. Providing information to any person regarding covered combinations, amounts wagered on specific combinations, number of tickets sold, or number of live tickets remaining is strictly prohibited, unless permission has been granted by the administrator. This shall not prohibit necessary communication between totalizator and pari-mutuel department employees for processing of pool data.

m. The association may suspend previously approved pick (n) wagering with the prior approval of the administrator. Any carryover shall be held until the suspended pick (n) wagering is reinstated. An association may request approval of a pick (n) wager or separate wagering pool for specific performances.

Table 7: PICK SEVEN POOL
Multiple Takeout Rates & Multiple Betting Sources
(Net Price Calculation)

	Percent Takeout	Gross Pool	Gross Amt. Bet on Win.	Net Pool	Net Amt. Bet on Win.
Source 1:	16%	$190,000.00	$ 44.00	$159,600.00	$ 36.96
Source 2:	18.5%	$ 10,000.00	$ 18.00	$ 8,150.00	$ 14.67
Source 3:	21%	$525,730.00	$124.00	$415,326.70	$ 97.96
TOTALS:		$725,730.00	$186.00	$583,076.70	$149.59

Total profit: Total net pool – total net bet on the winning combination =	$ 582,927.11
Profit per dollar: Total profit/total net bet on the winning combination =	$ 3,896.8321
$1 unbroken base price: Profit per dollar + $1 =	$ 3,897.8321
$1 unbroken price for source 1: $1 unbroken base price × (1 – percent takeout) =	$ 3,274.1789
$1 unbroken price for source 2: $1 unbroken base price × (1 – percent takeout) =	$ 3,176.7331
$1 unbroken price for source 3: $1 unbroken base price × (1 – percent takeout) =	$ 3,079.2873

8.3(8) *Place pick (n) pools.*

a. The place pick (n) requires selection of the first- or second-place finisher in each of a designated number of contests. The association must obtain written approval from the administrator concerning the

scheduling of place pick (n) contests, the designation of one of the methods prescribed in 8.3(8)*"b,"* the distinctive name identifying the pool and the amount of any cap to be set on the carryover. Any changes to the approved place pick (n) format require prior approval from the administrator.

b. The place pick (n) pool shall be apportioned under one of the following methods:

(1) Method 1, pick (n) with carryover. The net place pick (n) pool and carryover, if any, shall be distributed as a single-price pool to those who selected the first- or second-place finisher in each of the place pick (n) contests, based upon the official order of finish. If there are no such wagers, then a designated percentage of the net pool shall be distributed as a single-price pool of those who selected the first- or second-place finisher in the greatest number of place pick (n) contests; and the remainder shall be added to the carryover.

(2) Method 2, place pick (n) with minor pool and carryover. The major share of the net place pick (n) pool and the carryover, if any, shall be distributed to those who selected the first- or second-place finisher in each of the place pick (n) contests, based upon the official order of finish. The minor share of the net place pick (n) pool shall be distributed to those who selected the first- or second-place finisher in the second greatest number of place pick (n) contests, based upon the official order of finish. If there are no wagers selecting the first- or second-place finisher of all place pick (n) contests, the minor share of the net place pick (n) pool shall be distributed as a single-price pool to those who selected the first- or second-place finisher in the greatest number of place pick (n) contests; and the major share shall be added to the carryover.

(3) Method 3, place pick (n) with no minor pool and no carryover. The net place pick (n) pool shall be distributed as a single-price pool to those who selected the first- or second-place finisher in the greatest number of place pick (n) contests, based upon the official order of finish. If there are no winning wagers, the pool is refunded.

(4) Method 4, place pick (n) with minor pool and no carryover. The major share of the net place pick (n) pool shall be distributed to those who selected the first- or second-place finisher in the greatest number of place pick (n) contests, based upon the official order of finish. The minor share of the net place pick (n) pool shall be distributed to those who selected the first- or second-place finisher in the second greatest number of place pick (n) contests, based upon the official order of finish. If there are no wagers selecting the first- or second-place finisher in a second greatest number of place pick (n) contests, the minor share of the net place pick (n) pool shall be combined with the major share for distribution as a single-price pool to those who selected the first- or second-place finisher in the greatest number of place pick (n) contests. If the greatest number of first- or second-place finishers selected is one, the major and minor shares are combined for distribution as a single-price pool. If there are no winning wagers, the pool is refunded.

(5) Method 5, place pick (n) with minor pool and no carryover. The major share of net place pick (n) pool shall be distributed to those who selected the first- or second-place finisher in each of the place pick (n) contests, based upon the official order of finish. The minor share of the net place pick (n) pool shall be distributed to those who selected the first- or second-place finisher in the second greatest number of place pick (n) contests, based upon the official order of finish. If there are no wagers selecting the first- or second-place finisher in all place pick (n) contests, the entire net place pick (n) pool shall be distributed as a single-price pool to those who selected the first- or second-place finisher in the greatest number of place pick (n) contests. If there are no wagers selecting the first- or second-place finisher in a second greatest number of place pick (n) contests, the minor share of the net place pick (n) pool shall be combined with the major share for distribution as a single-price pool to those who selected the first-place finisher in each of the place pick (n) contests. If there are no winning wagers, the pool is refunded.

c. If there is a dead heat for first in any of the place pick (n) contests involving:

(1) Contestants representing the same betting interest, the place pick (n) pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the place pick (n) pool shall be distributed as a single-price pool with each winning wager including each betting interest participating in the dead heat.

d. If there is a dead heat for second in any of the place pick (n) contests involving:

(1) Contestants representing the same betting interest, the place pick (n) pool shall be distributed as if no dead heat occurred.

(2) Contestants representing two or more betting interests, the place pick (n) pool shall be distributed as a single-price pool with a winning wager including the betting interest which finished first or any betting interest involved in the dead heat for second.

e. Should a betting interest in any of the place pick (n) contests be scratched, the actual favorite, as evidenced by total amounts wagered in the win pool at the host association for the contest at the close of wagering on that contest, shall be substituted for the scratched betting interest for all purposes, including pool calculations. In the event that the win pool total for two or more favorites is identical, the substitute selection shall be the betting interest with the lowest program number. The totalizator shall produce reports showing each of the wagering combinations with substituted betting interests which became winners as a result of the substitution, in addition to the normal winning combination.

f. The place pick (n) pool shall be canceled and all place pick (n) wagers for the individual performance shall be refunded if:

(1) At least two contests included as part of a pick three are canceled or declared "no contest."

(2) At least three contests included as part of a pick four, pick five, or pick six are canceled or declared "no contest."

(3) At least four contests included as part of a pick seven, pick eight, or pick nine are canceled or declared "no contest."

(4) At least five contests included as part of a pick ten are canceled or declared "no contest."

g. If at least one contest included as part of a place pick (n) is canceled or declared "no contest," but not more than the number specified in 8.3(8)*"f,"* the net pool shall be distributed as a single-price pool to those whose selection finished first or second in the greatest number of place pick (n) contests for that performance. Such distribution shall include the portion ordinarily retained for the place pick (n) carryover but not the carryover from previous performances.

h. The place pick (n) carryover may be capped at a designated level approved by the administrator so that if, at the close of any performance, the amount in the place pick (n) carryover equals or exceeds the designated cap, the place pick (n) carryover will be frozen until it is won or distributed under other provisions of this subrule. After the place pick (n) carryover is frozen, 100 percent of the net pool, part of which ordinarily would be added to the place pick (n) carryover, shall be distributed to those whose selection finished first or second in the greatest number of place pick (n) contests for that performance.

i. A written request for permission to distribute the place pick (n) carryover on a specific performance may be submitted to the administrator. The request must contain justification for the distribution, an explanation of the benefit to be derived, and the intended date and performance for the distribution.

j. Should the place pick (n) carryover be designated for distribution on a specified date and performance in which there are no wagers selecting the first- or second-place finisher in each of the place pick (n) contests, the entire pool shall be distributed as a single-price pool to those whose selection finished first or second in the greatest number of place pick (n) contests. The place pick (n) carryover shall be designated for distribution on a specified date and performance only under the following circumstances:

(1) Upon written approval from the administrator as provided in 8.3(8)*"i."*

(2) Upon written approval from the administrator when there is a change in the carryover cap, a change from one type of place pick (n) wagering to another, or when the place pick (n) is discontinued.

(3) On the closing performance of the meet or split meet.

k. If, for any reason, the place pick (n) carryover must be carried over to the corresponding place pick (n) pool of a subsequent meet, the carryover shall be deposited in an interest-bearing account approved by the administrator. The place pick (n) carryover plus accrued interest shall then be added to the net place pick (n) pool of the following meet on a date and performance so designated by the administrator.

l. With the written approval of the administrator, the association may contribute to the place pick (n) carryover a sum of money up to the amount of any designated cap.

m. Providing information to any person regarding covered combinations, amounts wagered on specific combinations, number of tickets sold, or number of live tickets remaining is strictly prohibited, unless permission has been granted by the administrator. This shall not prohibit necessary communication between totalizator and pari-mutuel department employees for processing of pool data.

n. The association may suspend previously approved place pick (n) wagering with the prior approval of the administrator. Any carryover shall be held until the suspended place pick (n) wagering is reinstated. An association may request approval of a place pick (n) wager or separate wagering pool for specific performances.

8.3(9) *Quinella pools.*

a. The quinella requires selection of the first two finishers, irrespective of order, for a single contest.

b. The net quinella pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) If contestants of a coupled entry or mutuel field finish as the first two finishers, as a single-price pool to those selecting the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish; otherwise

(2) As a single-price pool to those whose combination finished as the first two betting interests; but if there are no such wagers, then

(3) As a profit split to those whose combination included either the first- or second-place finisher; but if there are no such wagers on one of those two finishers, then

(4) As a single-price pool to those whose combination included the one covered betting interest included within the first two finishers; but if there are no such wagers, then

(5) The entire pool shall be refunded on quinella wagers for that contest.

c. If there is a dead heat for first involving:

(1) Contestants representing the same betting interest, the quinella pool shall be distributed to those selecting the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish.

(2) Contestants representing two betting interests, the quinella pool shall be distributed as if no dead heat occurred.

(3) Contestants representing three or more betting interests, the quinella pool shall be distributed as a profit split.

d. If there is a dead heat for second involving contestants representing the same betting interest, the quinella pool shall be distributed as if no dead heat occurred.

e. If there is a dead heat for second involving contestants representing two or more betting interests, the quinella pool shall be distributed to wagers in the following precedence, based upon the official order of finish:

(1) As a profit split to those combining the winner with any of the betting interests involved in the dead heat for second; but if there is only one combination covered, then

(2) As a single-price pool to those combining the winner with the one covered betting interest involved in the dead heat for second; but if there are no such wagers, then

(3) As a profit split to those combining the betting interests involved in the dead heat for second; but if there are no such wagers, then

(4) As a profit split to those whose combination included the winner and any other betting interest and wagers selecting any of the betting interests involved in the dead heat for second; but if there are no such wagers, then

(5) The entire pool shall be refunded on quinella wagers for that contest.

8.3(10) *Quinella double pools.*

a. The quinella double requires selection of the first two finishers, irrespective of order, in each of two specified contests.

b. The net quinella double pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) If a coupled entry or mutuel field finishes as the first two contestants in either contest, as a single-price pool to those selecting the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish for that contest, as well as the first two finishers in the alternate quinella double contest; otherwise

(2) As a single-price pool to those who selected the first two finishers in each of the two quinella double contests; but if there are no such wagers, then

(3) As a profit split to those who selected the first two finishers in either of the two quinella double contests; but if there are no such wagers on one of the contests, then

(4) As a single-price pool to those who selected the first two finishers in the one covered quinella double contest; but if there are no such wagers, then

(5) The entire pool shall be refunded on quinella double wagers for those contests.

c. If there is a dead heat for first in either of the two quinella double contests involving:

(1) Contestants representing the same betting interest, the quinella double pool shall be distributed to those selecting the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish for that contest.

(2) Contestants representing two betting interests, the quinella double pool shall be distributed as if no dead heat occurred.

(3) Contestants representing three or more betting interests, the quinella double pool shall be distributed as a profit split.

d. If there is a dead heat for second in either of the quinella double contests involving contestants representing the same betting interest, the quinella double pool shall be distributed as if no dead heat occurred.

e. If there is a dead heat for second in either of the quinella double contests involving contestants representing two or more betting interests, the quinella double pool shall be distributed as profit split.

f. Should a betting interest in the first half of the quinella double be scratched prior to the first quinella double contest being declared official, all money wagered on combinations including the scratched betting interest shall be deducted from the quinella double pool and refunded.

g. Should a betting interest in the second half of the quinella double be scratched prior to the close of wagering on the first quinella double contest, all money wagered on combinations including the scratched betting interest shall be deducted from the quinella double pool and refunded.

h. Should a betting interest in the second half of the quinella double be scratched after the close of wagering on the first quinella double contest, all wagers combining the winning combination in the first contest with a combination including the scratched betting interest in the second contest shall be allocated a consolation payoff. In calculating the consolation payoff, the net quinella double pool shall be divided by the total amount wagered on the winning combination in the first contest and an unbroken consolation price obtained. The unbroken consolation price is multiplied by the dollar value of wagers on the winning combination in the first contest combined with a combination including the scratched betting interest in the second contest to obtain the consolation payoff. Breakage is not declared in this calculation. The consolation payoff is deducted from the net quinella double pool before calculation and distribution of the winning quinella double payoff. In the event of a dead heat involving separate betting interests, the net quinella double pool shall be distributed as a profit split.

i. If either of the quinella double contests is canceled prior to the first quinella double contest, or the first quinella double contest is declared "no contest," the entire quinella double pool shall be refunded on quinella double wagers for those contests.

j. If the second quinella double contest is canceled or declared "no contest" after the conclusion of the first quinella double contest, the net quinella double pool shall be distributed as a single-price pool to wagers selecting the winning combination in the first quinella double contest. If there are no wagers selecting the winning combination in the first quinella double contest, the entire quinella double pool shall be refunded on quinella double wagers for those contests.

8.3(11) *Exacta pools.*

a. The exacta requires selection of the first two finishers, in their exact order, for a single contest.

b. The net exacta pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) If contestants of a coupled entry or mutuel field finish as the first two finishers, as a single-price pool to those selecting the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish; otherwise

(2) As a single-price pool to those whose combination finished in correct sequence as the first two betting interests; but if there are no such wagers, then

(3) As a profit split to those whose combination included either the first-place betting interest to finish first or the second-place betting interest to finish second; but if there are no such wagers on one of those two finishers, then

(4) As a single-price pool to those whose combination included the one covered betting interest to finish first or second in the correct sequence; but if there are no such wagers, then

(5) The entire pool shall be refunded on exacta wagers for that contest.

c. If there is a dead heat for first involving:

(1) Contestants representing the same betting interest, the exacta pool shall be distributed as a single-price pool to those selecting the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish.

(2) Contestants representing two or more betting interests, the exacta pool shall be distributed as a profit split.

d. If there is a dead heat for second involving contestants representing the same betting interest, the exacta pool shall be distributed as if no dead heat occurred.

e. If there is a dead heat for second involving contestants representing two or more betting interests, the exacta pool shall be distributed to ticket holders in the following precedence, based upon the official order of finish:

(1) As a profit split to those combining the first-place betting interest with any of the betting interests involved in the dead heat for second; but if there is only one covered combination, then

(2) As a single-price pool to those combining the first-place betting interest with the one covered betting interest involved in the dead heat for second; but if there are no such wagers, then

(3) As a profit split to those wagers correctly selecting the winner for first place and those wagers selecting any of the dead-heated betting interests for second place; but if there are no such wagers, then

(4) The entire pool shall be refunded on exacta wagers for that contest.

8.3(12) *Trifecta pools.*

a. The trifecta requires selection of the first three finishers, in their exact order, for a single contest.

b. The net trifecta pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) As a single-price pool to those whose combination finished in correct sequence as the first three betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination correctly selected the first-place betting interest only; but if there are no such wagers, then

(4) The entire pool shall be refunded on trifecta wagers for that contest.

c. If less than three betting interests finish and the contest is declared official, payoffs will be made based upon the order of finish of those betting interests completing the contest. The balance of any selection beyond the number of betting interests completing the contest shall be ignored.

d. If there is a dead heat for first involving:

(1) Contestants representing three or more betting interests, all of the wagering combinations selecting three or more betting interests which correspond with any of the betting interests involved in the dead heat shall share in a profit split.

(2) Contestants representing two betting interests, both of the wagering combinations selecting the two dead-heated betting interests, irrespective of order, along with the third-place betting interest shall share in a profit split.

e. If there is a dead heat for second, all of the combinations correctly selecting the winner combined with any of the betting interests involved in the dead heat for second shall share in a profit split.

f. If there is a dead heat for third, all wagering combinations correctly selecting the first two finishers, in correct sequence, along with any of the betting interests involved in the dead heat for third shall share in a profit split.

g. Coupled entries and mutuel fields shall be allowed in trifecta contests.

h. Rescinded IAB 10/18/00, effective 11/22/00.

8.3(13) *Superfecta pools.*

a. The superfecta requires selection of the first four finishers, in their exact order, for a single contest.

b. The net superfecta pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish:

(1) As a single-price pool to those whose combination finished in correct sequence as the first four betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first three betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(4) As a single-price pool to those whose combination correctly selected the first-place betting interest only; but if there are no such wagers, then

(5) The entire pool shall be refunded on superfecta wagers for that contest.

c. If less than four betting interests finish and the contest is declared official, payoffs will be made based upon the order of finish of those betting interests completing the contest. The balance of any selection beyond the number of betting interests completing the contest shall be ignored.

d. If there is a dead heat for first involving:

(1) Contestants representing four or more betting interests, all of the wagering combinations selecting four betting interests which correspond with any of the betting interests involved in the dead heat shall share in a profit split.

(2) Contestants representing three betting interests, all of the wagering combinations selecting the three dead-heated betting interests, irrespective of order, along with the fourth-place betting interest shall share in a profit split.

(3) Contestants representing two betting interests, both of the wagering combinations selecting the two dead-heated betting interests, irrespective of order, along with the third-place and fourth-place betting interests shall share in a profit split.

e. If there is a dead heat for second involving:

(1) Contestants representing three or more betting interests, all of the wagering combinations correctly selecting the winner combined with any of the three betting interests involved in the dead heat for second shall share in a profit split.

(2) Contestants representing two betting interests, all of the wagering combinations correctly selecting the winner, the two dead-heated betting interests, irrespective of order, and the fourth-place betting interests shall share in a profit split.

f. If there is a dead heat for third, all wagering combinations correctly selecting the first two finishers, in correct sequence, along with any two of the betting interests involved in the dead heat for third shall share in a profit split.

g. If there is a dead heat for fourth, all wagering combinations correctly selecting the first three finishers, in correct sequence, along with any of the betting interests involved in the dead heat for fourth shall share in a profit split.

h. Rescinded IAB 6/8/94, effective 7/13/94.

8.3(14) *Twin quinella pools.*

a. The twin quinella requires selection of the first two finishers, irrespective of order, in each of two designated contests. Each winning ticket for the first twin quinella contest must be exchanged for

a free ticket on the second twin quinella contest in order to remain eligible for the second-half twin quinella pool. Such tickets may be exchanged only at attended ticket windows prior to the second twin quinella contest. There will be no monetary reward for winning the first twin quinella contest. Both of the designated twin quinella contests shall be included in only one twin quinella pool.

b. In the first twin quinella contest only, winning wagers shall be determined using the following precedence, based upon the official order of finish for the first twin quinella contest:

(1) If a coupled entry or mutuel field finishes as the first two finishers, those who selected the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish shall be winners; otherwise

(2) Those whose combination finished as the first two betting interests shall be winners; but if there are no such wagers, then

(3) Those whose combination included either the first- or second-place finisher shall be winners; but if there are no such wagers on one of those two finishers, then

(4) Those whose combination included the one covered betting interest included within the first two finishers shall be winners; but if there are no such wagers, then

(5) The entire pool shall be refunded on twin quinella wagers for that contest.

c. In the first twin quinella contest only, if there is a dead heat for first involving:

(1) Contestants representing the same betting interest, those who selected the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish shall be winners.

(2) Contestants representing two betting interests, the winning twin quinella wagers shall be determined as if no dead heat occurred.

(3) Contestants representing three or more betting interests, those whose combination included any two of the betting interests finishing in the dead heat shall be winners.

d. In the first twin quinella contest only, if there is a dead heat for second involving contestants representing two or more betting interests, the twin quinella pool shall be distributed to wagers in the following precedence, based upon the official order of finish:

(1) As a profit split to those combining the winner with any of the betting interests involved in the dead heat for second; but if there is only one covered combination, then

(2) As a single-price pool to those combining the winner with the one covered betting interest involved in the dead heat for second; but if there are no such wagers, then

(3) As a profit split to those combining the betting interests involved in the dead heat for second; but if there are no such wagers, then

(4) As a profit split to those whose combination included the winner and any other betting interest and wagers selecting any of the betting interests involved in the dead heat for second; but if there are no such wagers, then

(5) The entire pool shall be refunded on twin quinella wagers for that contest.

e. In the second twin quinella contest only, the entire net twin quinella pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish for the second twin quinella contest:

(1) If a coupled entry or mutuel field finishes as the first two finishers, as a single-price pool to those who selected the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish; otherwise

(2) As a single-price pool to those whose combination finished as the first two betting interests; but if there are no such wagers, then

(3) As a profit split to those whose combination included either the first- or second-place finisher; but if there are no such wagers on one of those two finishers, then

(4) As a single-price pool to those whose combination included the one covered betting interest included within the first two finishers; but if there are no such wagers, then

(5) As a single-price pool to all the exchange ticket holders for that contest; but if there are no such tickets, then

(6) In accordance with 8.3(10)*"b"* of the quinella double rules.

f. In the second twin quinella contest only, if there is a dead heat for first involving:

(1) Contestants representing the same betting interest, the net twin quinella pool shall be distributed to those selecting the coupled entry or mutuel field combined with the next separate betting interest in the official order of finish.

(2) Contestants representing two betting interests, the net twin quinella pool shall be distributed as if no dead heat occurred.

(3) Contestants representing three or more betting interests, the net twin quinella pool shall be distributed as a profit split to those whose combination included any two of the betting interests finishing in the dead heat.

g. In the second twin quinella contest only, if there is a dead heat for second involving contestants representing two or more betting interests, the twin quinella pool shall be distributed to wagers in the following precedence, based upon the official order of finish:

(1) As a split to those combining the winner with any of the betting interests involved in the dead heat for second; but if there is only one covered combination, then

(2) As a single-price pool to those combining the winner with the one covered betting interest involved in the dead heat for second; but if there are no such wagers, then

(3) As a profit split to those combining the betting interests involved in the dead heat for second; but if there are no such wagers, then

(4) As a profit split to those whose combination included the winner and any other betting interest and wagers selecting any of the betting interests involved in the dead heat for second, then

(5) As a single-price pool to all the exchange ticket holders for that contest; but if there are no such tickets, then

(6) In accordance with 8.3(14)*"b"* of the twin quinella rules.

h. If a winning ticket for the first half of the twin quinella is not presented for exchange prior to the close of betting on the second-half twin quinella contest, the ticket holder forfeits all rights to any distribution of the twin quinella pool resulting from the outcome of the second contest.

i. Contestants representing the same betting interest, the net twin quinella pool shall be distributed as if no dead heat occurred.

j. Should a betting interest in the first half of the twin quinella be scratched, those twin quinella wagers including the scratched betting interest shall be refunded.

k. Should a betting interest in the second half of the twin quinella be scratched, an announcement concerning the scratch shall be made and a reasonable amount of time shall be provided for exchange of tickets that include the scratched betting interest. If tickets have not been exchanged prior to the close of betting for the second twin quinella contest, the ticket holder forfeits all rights to the twin quinella pool.

l. If either of the twin quinella contests is canceled prior to the first twin quinella contest, or the first twin quinella contest is declared "no contest," the entire twin quinella pool shall be refunded on twin quinella wagers for that contest.

m. If the second-half twin quinella contest is canceled or declared "no contest" after the conclusion of the first twin quinella contest, the net twin quinella pool shall be distributed as a single-price pool to wagers selecting the winning combination in the first twin quinella contest and all valid exchange tickets. If there are no such wagers, the net twin quinella pool shall be distributed as described in 8.3(14)*"b"* of the twin quinella rules.

8.3(15) *Twin trifecta pools.*

a. The twin trifecta requires selection of the first three finishers, in their exact order, in each of two designated contests. Each winning ticket for the first twin trifecta contest must be exchanged for a free ticket on the second twin trifecta contest in order to remain eligible for the second-half twin trifecta pool. Such tickets may be exchanged only at attended ticket windows prior to the second twin trifecta contest. Winning first-half twin trifecta wagers will receive both an exchange and a monetary payoff. Both of the designated twin trifecta contests shall be included in only one twin trifecta pool.

b. After wagering closes for the first half of the twin trifecta and commissions have been deducted from the pool, the net pool shall then be divided into separate pools: the first-half twin trifecta pool and the second-half twin trifecta pool.

c. In the first twin trifecta contest only, winning wagers shall be determined using the following precedence, based upon the official order of finish for the first twin trifecta contest:

(1) As a single-price pool to those whose combination finished in correct sequence as the first three betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination correctly selected the first-place betting interest only; but if there are no such wagers, then

(4) The entire twin trifecta pool shall be refunded on twin trifecta wagers for that contest and the second half shall be canceled.

d. If no first-half twin trifecta ticket selects the first three finishers of that contest in exact order, winning ticket holders shall not receive any exchange tickets for the second half of the twin trifecta pool. In such case, the second-half twin trifecta pool shall be retained and added to any existing twin trifecta carryover pool.

e. Winning tickets from the first half of the twin trifecta shall be exchanged for tickets selecting the first three finishers of the second half of the twin trifecta. The second-half twin trifecta pool shall be distributed to winning wagers in the following precedence, based upon the official order for the second twin trifecta contest:

(1) As a single-price pool, including any existing carryover moneys, to those whose combination finished in correct sequence as the first three betting interests; but if there are no such tickets, then

(2) The entire second-half twin trifecta pool for that contest shall be added to any existing carryover moneys and retained for the corresponding second-half twin trifecta pool of the next consecutive performance.

f. If a winning first-half twin trifecta ticket is not presented for cashing and exchange prior to the second-half twin trifecta contest, the ticket holder may still collect the monetary value associated with the first-half twin trifecta pool but forfeits all rights to any distribution of the second-half twin trifecta pool.

g. Coupled entries and mutuel fields shall be allowed in twin trifecta contests.

h. Should a betting interest in the first half of the twin trifecta be scratched, those twin trifecta wagers including the scratched betting interest shall be refunded.

i. Should a betting interest in the second half of the twin trifecta be scratched, an announcement concerning the scratch shall be made and a reasonable amount of time shall be provided for exchange of tickets that include the scratched betting interest. If tickets have not been exchanged prior to the close of betting for the second twin trifecta contest, the ticket holder forfeits all rights to the second-half twin trifecta pool.

j. If, due to a late scratch, the number of betting interests in the second half of the twin trifecta is reduced to fewer than the minimum, all exchange tickets and outstanding first-half winning tickets shall be entitled to the second-half twin trifecta pool for that contest as a single-price pool, but not the twin trifecta carryover.

k. If there is a dead heat or multiple dead heats in either the first or second half of the twin trifecta, all twin trifecta wagers selecting the correct order of finish, counting a betting interest involved in a dead heat as finishing in any dead-heated position, shall be a winner. In the case of a dead heat occurring in:

(1) The first half of the twin trifecta, the payoff shall be calculated as a profit split.

(2) The second half of the twin trifecta, the payoff shall be calculated as a single-price pool.

l. If either of the twin trifecta contests is canceled prior to the first twin trifecta contest, or the first twin trifecta contest is declared "no contest," the entire twin trifecta pool shall be refunded on twin trifecta wagers for that contest and the second half shall be canceled.

m. If the second-half twin trifecta contest is canceled or declared "no contest," all exchange tickets and outstanding first-half winning twin trifecta tickets shall be entitled to the net twin trifecta pool for that contest as a single-price pool, but not twin trifecta carryover. If there are no such tickets, the net twin trifecta pool shall be distributed as described in 8.3(14)*"c"* of the twin trifecta rules.

n. The twin trifecta carryover may be capped at a designated level approved by the administrator so that if, at the close of any performance, the amount in the twin trifecta carryover equals or exceeds the designated cap, the twin trifecta carryover will be frozen until it is won or distributed under other provisions of this subrule. After the twin trifecta carryover is frozen, 100 percent of the net twin trifecta pool for each individual contest shall be distributed to winners of the first half of the twin trifecta pool.

o. A written request for permission to distribute the twin trifecta carryover on a specific performance may be submitted to the administrator. The request must contain justification for the distribution, an explanation of the benefit to be derived, and the intended date and performance for the distribution.

p. Should the twin trifecta carryover be designated for distribution on a specified date and performance, the following precedence will be followed in determining winning tickets for the second half of the twin trifecta after completion of the first half of the twin trifecta:

(1) As a single-price pool to those whose combination finished in correct sequence as the first three betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination correctly selected the first-place betting interest only; but if there are no such wagers, then

(4) As a single-price pool to holders of valid exchange tickets.

(5) As a single-price pool to holders of outstanding first-half winning tickets.

q. Contrary to 8.3(14)*"d"* of the twin trifecta rules, during a performance designated to distribute the twin trifecta carryover, exchange tickets will be issued for those combinations selecting the greatest number of betting interests in their correct order of finish for the first half of the twin trifecta. If there are no wagers correctly selecting the first-, second-, and third-place finishers, in their exact order, then exchange tickets shall be issued for combinations correctly selecting the first- and second-place finishers, in their exact order, then exchange tickets shall be issued for combinations correctly selecting the first-place betting interest only. If there are no wagers selecting the first-place betting interest only in the first half of the twin trifecta, all first-half tickets will become winners and will receive 100 percent of that day's net twin trifecta pool and any existing twin trifecta carryover as a single-price pool.

r. The twin trifecta carryover shall be designated for distribution on a specified date and performance only under the following circumstances:

(1) Upon written approval from the administrator as provided in 8.3(14)*"o"* of the twin trifecta rules.

(2) Upon written approval from the administrator when there is a change in the carryover cap or when the twin trifecta is discontinued.

(3) On the closing performance of the meet or split meet.

s. If, for any reason, the twin trifecta carryover must be carried over to the corresponding twin trifecta pool of a subsequent meet, the carryover shall be deposited in an interest-bearing account approved by the administrator. The twin trifecta carryover plus accrued interest shall then be added to the second-half twin trifecta pool of the following meet on a date and performance so designated by the administrator.

t. Providing information to any person regarding covered combinations, amounts wagered on specific combinations, number of tickets sold, or number of valid exchange tickets is prohibited, unless permission is granted by the administrator. This shall not prohibit necessary communication between totalizator and pari-mutuel department employees' processing of pool data.

u. The association must obtain written approval from the administrator concerning the scheduling of twin trifecta contests, the percentages of the net pool added to the first-half pool and second-half pool, and the designated amount of any cap to be set on the carryover. Any subsequent changes to the twin trifecta rules require prior approval from the administrator.

8.3(16) *Tri-superfecta pools.*

a. The tri-superfecta requires selection of the first three finishers, in their exact order, in the first of two designated contests and the first four finishers, in exact order, in the second of the two designated

contests. Each winning ticket for the first tri-superfecta contest must be exchanged for a free ticket on the second tri-superfecta contest in order to remain eligible for the second-half tri-superfecta pool. Such tickets may be exchanged only at attended ticket windows prior to the second tri-superfecta contest. Winning first-half tri-superfecta tickets will receive both an exchange and a monetary payoff. Both of the designated tri-superfecta contests shall be included in only one tri-superfecta pool.

b. After wagering closes for the first half of the tri-superfecta and commissions have been deducted from the pool, the net pool shall then be divided into two separate pools: the first-half tri-superfecta pool and the second-half tri-superfecta pool.

c. In the first tri-superfecta contest only, winning tickets shall be determined using the following precedence, based upon the official order of finish for the first tri-superfecta contest:

(1) As a single-price pool to those whose combination finished in correct sequence as the first three betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination correctly selected the first-place betting interest only; but if there are no such wagers, then

(4) The entire tri-superfecta pool shall be refunded on tri-superfecta wagers for that contest and the second half shall be canceled.

d. If no first-half tri-superfecta ticket selects the first three finishers of that contest in exact order, winning ticket holders shall not receive any exchange tickets for the second-half tri-superfecta pool. In such case, the second-half tri-superfecta pool shall be retained and added to any existing tri-superfecta carryover pool.

e. Winning tickets from the first half of the tri-superfecta shall be exchanged for tickets selecting the first four finishers of the second half of the tri-superfecta. The second-half tri-superfecta pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish for the second tri-superfecta contest:

(1) As a single-price pool, including any existing carryover moneys, to those whose combination finished in correct sequence as the first four betting interests; but if there are no such tickets, then

(2) The entire second-half tri-superfecta pool for that contest shall be added to any existing carryover moneys and retained for the corresponding second-half tri-superfecta pool of the next performance.

f. If a winning first-half tri-superfecta ticket is not presented for cashing and exchange prior to the second-half tri-superfecta contest, the ticket holder may still collect the monetary value associated with the first-half tri-superfecta pool but forfeits all rights to any distribution of the second-half tri-superfecta pool.

g. Coupled entries and mutuel fields shall be prohibited in tri-superfecta contests.

h. Should a betting interest in the first half of the tri-superfecta be scratched, those tri-superfecta tickets including the scratched betting interest shall be refunded.

i. Should a betting interest in the second half of the tri-superfecta be scratched, an announcement concerning the scratch shall be made and a reasonable amount of time shall be provided for exchange of tickets that include the scratched betting interest. If tickets have not been exchanged prior to the close of betting for the second tri-superfecta contest, the ticket holder forfeits all rights to the second-half tri-superfecta pool.

j. If, due to a late scratch, the number of betting interests in the second half of the tri-superfecta is reduced to fewer than the minimum, all exchange tickets and outstanding first-half winning tickets shall be entitled to the second-half tri-superfecta pool for that contest as a single-price pool, but not the tri-superfecta carryover..

k. If there is a dead heat or multiple dead heats in either the first or second half of the tri-superfecta, all tri-superfecta tickets selecting the correct order of finish, counting a betting interest involved in a dead heat as finishing in any dead-heated position, shall be a winner. In the case of a dead heat occurring in:

(1) The first half of the tri-superfecta, the payoff shall be calculated as a profit split.

(2) The second half of the tri-superfecta, the payoff shall be calculated as a single-price pool.

l. If either of the tri-superfecta contests is canceled prior to the first tri-superfecta contest, or the first tri-superfecta contest is declared "no contest," the entire tri-superfecta pool shall be refunded on tri-superfecta wagers for that contest and the second half shall be canceled.

m. If the second-half tri-superfecta contest is canceled or declared "no contest," all exchange tickets and outstanding first-half winning tri-superfecta tickets shall be entitled to the net tri-superfecta pool for that contest as a single-price pool, but not the tri-superfecta carryover. If there are no such tickets, the net tri-superfecta pool shall be distributed as described in 8.3(16)*"c"* of the tri-superfecta rules.

n. The tri-superfecta carryover may be capped at a designated level approved by the administrator so that if, at the close of any performance, the amount in the tri-superfecta carryover equals or exceeds the designated cap, the tri-superfecta carryover will be frozen until it is won or distributed under other provisions of this subrule. After the second-half tri-superfecta carryover is frozen, 100 percent of the tri-superfecta pool for each individual contest shall be distributed to winners of the first half of the tri-superfecta pool.

o. A written request for permission to distribute the tri-superfecta carryover on a specific performance may be submitted to the administrator. The request must contain justification for the distribution, an explanation of the benefit to be derived, and the intended date and performance for the distribution.

p. Should the tri-superfecta carryover be designated for distribution on a specified date and performance, the following precedence will be followed in determining winning tickets for the second half of the tri-superfecta after completion of the first half of the tri-superfecta:

(1) As a single-price pool to those whose combination finished in correct sequence as the first four betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first three betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(4) As a single-price pool to those whose combination included, in correct sequence, the first-place betting interests only; but if there are no such wagers, then

(5) As a single-price pool to holders of valid exchange tickets.

(6) As a single-price pool to holders of outstanding first-half winning tickets.

q. Contrary to 8.3(16)*"d"* of the tri-superfecta rules, during a performance designated to distribute the tri-superfecta carryover, exchange tickets will be issued for those combinations selecting the greatest number of betting interests in their correct order of finish for the first half of the tri-superfecta. If there are no wagers correctly selecting the first-, second-, and third-place finishers, in their exact order, then exchange tickets shall be issued for combinations correctly selecting the first- and second-place betting interests. If there are no wagers correctly selecting the first- and second-place finishers, in their exact order, then exchange tickets shall be issued for combinations correctly selecting the first-place betting interest only. If there are no wagers selecting the first-place betting interest only in the first half of the tri-superfecta, all first-half tickets will become winners and will receive 100 percent of the day's net tri-superfecta pool and any existing tri-superfecta carryover as a single-price pool.

r. The tri-superfecta carryover shall be designated for distribution on a specified date and performance only under the following circumstances:

(1) Upon written approval from the administrator as provided in 8.3(16)*"o"* of the tri-superfecta rules.

(2) Upon written approval from the administrator when there is a change in the carryover cap or when the tri-superfecta is discontinued.

(3) On the closing performance of the meet or split meet.

s. If, for any reason, the tri-superfecta carryover must be carried over to the corresponding tri-superfecta pool of a subsequent meet, the carryover shall be deposited in an interest-bearing account approved by the administrator. The tri-superfecta carryover plus accrued interest shall then be added to the second-half tri-superfecta pool of the following meet on a date and performance so designated by the administrator.

t. Providing information to any person regarding covered combinations, amounts wagered on specific combinations, number of tickets sold, or number of valid exchange tickets is prohibited, unless permission has been granted by the administrator. This shall not prohibit necessary communication between totalizator and pari-mutuel department employees for processing of pool data.

u. The association must obtain written approval from the administrator concerning the scheduling of tri-superfecta contests, the percentages of the net pool added to the first-half pool and second-half pool, and the designated amount of any cap to be set on the carryover. Any subsequent changes to the tri-superfecta rules require prior approval from the administrator.

8.3(17) *Twin superfecta pools.*

a. The twin superfecta requires selection of the first four finishers, in their exact order, in each of two designated contests. Each winning ticket for the first twin superfecta contest must be exchanged for a free ticket on the second twin superfecta contest in order to remain eligible for the second-half twin superfecta pool. Such tickets may be exchanged only at attended ticket windows prior to the second twin superfecta contest. Winning first-half twin superfecta tickets will receive both an exchange and a monetary payoff. Both of the designated twin superfecta contests shall be included in only one twin superfecta pool.

b. After wagering closes for the first half of the twin superfecta and commissions have been deducted from the pool, the net pool shall then be divided into two separate pools: the first-half twin superfecta pool and the second-half twin superfecta pool.

c. In the first twin superfecta contest only, winning wagers shall be determined using the following precedence, based upon the official order of finish for the first twin superfecta contest:

(1) As a single-price pool to those whose combination finished in correct sequence as the first four betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first three betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(4) As a single-price pool to those whose combination correctly selected the first-place betting interest only; but if there are no such wagers, then

(5) The entire twin superfecta pool shall be refunded on twin superfecta wagers for that contest and the second half shall be canceled.

d. If no first-half twin superfecta ticket selects the first four finishers of that contest in exact order, winning ticket holders shall not receive any exchange tickets for the second-half twin superfecta pool. In such case, the second-half twin superfecta pool shall be retained and added to any existing twin superfecta carryover pool.

e. Winning tickets from the first half of the twin superfecta shall be exchanged for tickets selecting the first four finishers of the second half of the twin superfecta. The second-half twin superfecta pool shall be distributed to winning wagers in the following precedence, based upon the official order of finish for the second twin superfecta contest:

(1) As a single-price pool, including any existing carryover moneys, to those whose combination finished in correct sequence as the first four betting interests; but if there are no such tickets, then

(2) The entire second-half twin trifecta pool for that contest shall be added to any existing carryover moneys and retained for the corresponding second-half twin superfecta pool of the next performance. The additional second-half twin superfecta moneys resulting from such a carryover shall be termed the "twin superfecta carryover."

f. If a winning first-half twin superfecta ticket is not presented for cashing and exchange prior to the second-half twin superfecta contest, the ticket holder may still collect the monetary value associated with the first-half twin superfecta pool but forfeits all rights to any distribution of the second-half twin trifecta pool.

g. Coupled entries and mutuel fields shall be prohibited in twin superfecta contests.

h. Should a betting interest in the first half of the twin superfecta be scratched, those twin superfecta tickets including the scratched betting interest shall be refunded.

i. Should a betting interest in the second half of the twin superfecta be scratched, an announcement concerning the scratch shall be made and a reasonable amount of time shall be provided for exchange of tickets that include the scratched betting interest. If tickets have not been exchanged prior to the close of betting for the second twin superfecta contest, the ticket holder forfeits all rights to the second-half twin superfecta pool.

j. If, due to a late scratch, the number of betting interests in the second half of the twin superfecta is reduced to fewer than the minimum, all exchange tickets and outstanding first-half winning tickets shall be entitled to the second-half twin superfecta pool for that contest as a single-price pool, but not the twin superfecta carryover.

k. If there is a dead heat or multiple dead heats in either the first or second half of the twin superfecta, all twin superfecta tickets selecting the correct order of finish, counting a betting interest involved in a dead heat as finishing in any dead-heated position, shall be a winner. In the case of a dead heat occurring in:

(1) The first half of the twin superfecta, the payoff shall be calculated as a profit split.

(2) The second half of the twin superfecta, the payoff shall be calculated as a single-price pool.

l. If either of the twin superfecta contests are canceled prior to the first twin superfecta contest, or the first twin superfecta contest is declared "no contest," the entire twin superfecta pool shall be refunded on twin superfecta wagers for that contest and the second half shall be canceled.

m. If the second-half twin superfecta contest is canceled or declared "no contest," all exchange tickets and outstanding first-half winning twin superfecta tickets shall be entitled to the net twin superfecta pool for that contest as a single-price pool, but not the twin superfecta carryover. If there are no such tickets, the net twin superfecta pool shall be distributed as described in 8.3(17)*"c"* of the twin superfecta rules.

n. The twin superfecta carryover may be capped at a designated level approved by the administrator so that if, at the close of any performance, the amount in the twin superfecta carryover equals or exceeds the designated cap, the twin superfecta carryover will be frozen until it is won or distributed under other provisions of this subrule. After the second-half twin superfecta carryover is frozen, 100 percent of the net twin superfecta pool for each individual contest shall be distributed to winners of the first half of the twin superfecta pool.

o. A written request for permission to distribute the twin superfecta carryover on a specific performance may be submitted to the administrator. The request must contain justification for the distribution, an explanation of the benefit to be derived, and the intended date and performance for the distribution.

p. Should the twin superfecta carryover be designated for distribution of a specified date and performance, the following precedence will be followed in determining winning tickets for the second half of the twin superfecta after completion of the first half of the twin superfecta:

(1) As a single-price pool to those whose combination finished in correct sequence as the first four betting interests; but if there are no such wagers, then

(2) As a single-price pool to those whose combination included, in correct sequence, the first three betting interests; but if there are no such wagers, then

(3) As a single-price pool to those whose combination included, in correct sequence, the first two betting interests; but if there are no such wagers, then

(4) As a single-price pool to those whose combination correctly selected the first-place betting interest only; but if there are no such wagers, then

(5) As a single-price pool to holders of valid exchange tickets.

(6) As a single-price pool to holders of outstanding first-half winning tickets.

q. Contrary to 8.3(17)*"d"* of the twin superfecta rules, during a performance designated to distribute the twin superfecta carryover, exchange tickets will be issued for those combinations selecting the greatest number of betting interests in their correct order of finish for the first half of the twin superfecta. If there are no wagers correctly selecting the first-, second-, third-, and fourth-place finishers, in their exact order, then exchange tickets shall be issued for combinations correctly selecting the first-, second-, and third-place betting interests. If there are no wagers correctly selecting the

first-, second-, and third-place finishers, in their exact order, then exchange tickets shall be issued for combinations correctly selecting the first- and second-place betting interests. If there are no wagers correctly selecting the first- and second-place finishers, in their exact order, then exchange tickets shall be issued for combinations correctly selecting the first-place betting interest only. If there are no wagers selecting the first-place betting interest only in the first half of the twin superfecta, all first-half tickets will become winners and will receive 100 percent of that day's net twin superfecta pool and any existing twin superfecta carryover as a single-price pool.

r. The twin superfecta carryover shall be designated for distribution on a specified date and performance only under the following circumstances:

(1) Upon written approval from the administrator as provided in 8.3(17)*"o"* of the twin superfecta rules.

(2) Upon written approval from the administrator when there is a change in the carryover cap or when the twin superfecta is discontinued.

(3) On the closing performance of the meet or split meet.

s. If, for any reason, the twin superfecta carryover must be carried over to the corresponding twin superfecta pool of a subsequent meet, the carryover shall be deposited in an interest-bearing account approved by the administrator. The twin superfecta carryover plus accrued interest shall then be added to the second-half twin superfecta pool of the following meet on a date and performance so designated by the administrator.

t. Providing information to any person regarding covered combinations, amount wagered on specific combinations, number of tickets sold, or number of valid exchange tickets is prohibited, unless permission has been granted by the administrator. This shall not prohibit necessary communication between totalizator and pari-mutuel department employees for processing of pool data.

u. The association must obtain written approval from the administrator concerning the scheduling of twin superfecta contests, the percentages of the net pool added to the first-half pool and second-half pool, and the designated amount of any cap to be set on the carryover. Any subsequent changes to the twin superfecta rules require prior approval from the administrator.

491—8.4(99D) Simulcast wagering.

8.4(1) *General.*

a. Rules. All simulcasting must be transmitted live and all wagering on simulcasting shall be made in accordance with the commission rules on pari-mutuel wagering. Commission rules in effect during live racing shall remain in effect during simulcasting where applicable.

b. Transmission. The method used to transmit sales transaction and pari-mutuel output data must be approved by the commission, based upon the determination that provisions to secure the system and transmission are satisfactory.

c. Communication. A communication system between the host track and the receiving facility must be provided which will allow the totalizator operator and the commission representatives at the host track to communicate with the facility receiving the signal. The association is responsible during the racing program's operating hours for reporting any problems or delays to the public.

d. Approval.

(1) All simulcasting, both interstate and intrastate, must be preapproved by the commission or commission representative. Each association conducting simulcasting shall submit an annual written simulcast proposal to the commission with the application for license renewal required by 491— Chapter 1.

(2) The commission representative, upon written request, may grant modifications to the annual simulcast proposal. The commission representative may approve or disapprove simulcast requests at the representative's discretion. Factors that may be considered include, but are not limited to: economic conditions of an association, impact on other associations, impact on the Iowa breeding industry, other gambling in the state, and any other considerations the commission representative deems appropriate.

(3) Once simulcast authority has been granted by the commission or commission representative, it shall be the affirmative responsibility of the association granted simulcast authority to obtain all necessary

permission from other states and tracks to simulcast the pari-mutuel races. In addition, the burden of adhering to state and federal laws concerning simulcasting rests on the association at all times.

8.4(2) *Simulcast host.*

a. Every host association, if requested, may contract with an authorized receiver for the purpose of providing authorized users its simulcast. All contracts governing participation in interstate or intrastate pools shall be submitted to the commission representative for prior approval. Contracts shall be of such content and in such format as required by the commission representative.

b. A host association is responsible for the content of the simulcast and shall use all reasonable effort to present a simulcast which offers the viewers an exemplary depiction of each performance.

c. Unless otherwise permitted by the commission representative, every simulcast will contain in its video content a digital display of actual time of day, the name of the host facility from which it emanates, the number of the contest being displayed, and any other relevant information available to patrons at the host facility.

d. The host association shall maintain such security controls, including encryption over its uplink and communications systems, as directed or approved by the commission or commission representative.

e. Financial reports shall be submitted daily or as otherwise directed by the commission representative. Reports shall be of such content and in such format as required by the commission representative.

8.4(3) *Authorized receiver.*

a. An authorized receiver shall provide:

(1) Adequate transmitting and receiving equipment of acceptable broadcast quality which shall not interfere with the closed circuit TV system of the host association for providing any host facility patron information.

(2) Pari-mutuel terminals, pari-mutuel odds displays, modems and switching units enabling pari-mutuel data transmissions, and data communications between the host and guest associations.

(3) A voice communication system between each guest association and the host association providing timely voice contact among the commission representative, placing judges, and pari-mutuel departments.

b. The guest association and all authorized receivers shall conduct pari-mutuel wagering pursuant to the applicable commission rules.

c. Not less than 30 minutes prior to the commencement of transmission of the performance of pari-mutuel contests, the guest association shall initiate a test program of its transmitter, encryption and decoding, and data communication to ensure proper operation of the system.

d. The guest association shall, in conjunction with the host association(s) for which it operates pari-mutuel wagering, provide the commission representative with a certified report of its pari-mutuel operations as directed by the commission representative.

e. Every authorized receiver shall file with the commission an annual report of its simulcast operations and an audited financial statement.

f. The mutuel manager shall notify the commission representative when the transfer of pools, pool totals, or calculations are in question, or if partial or total cancellations occur, and shall suggest alternatives for continued operation. Should loss of video signal occur, wagering may continue with approval from the commission representative.

491—8.5(99D) Interstate common-pool wagering.

8.5(1) *General.*

a. All contracts governing participation in interstate common pools shall be submitted to the commission representative for prior approval. Financial reports shall be submitted daily or as otherwise directed by the commission representative. Contracts and reports shall be of such content and in such format as required by the commission representative.

b. Individual wagering transactions are made at the point of sale in the state where placed. Pari-mutuel pools are combined for computing odds and calculating payoffs but will be held separate for auditing and all other purposes.

c. Any surcharges or withholdings in addition to the takeout shall be applied only in the jurisdiction otherwise imposing such surcharges or withholdings.

d. In determining whether to approve an interstate common pool which does not include the host association or which includes contests from more than one association, the commission representative shall consider and may approve use of a bet type which is not utilized at the host association, application of a takeout rate not in effect at the host association, or other factors which are presented to the commission representative.

e. The content and format of the visual display of racing and wagering information at facilities in other jurisdictions where wagering is permitted in the interstate common pool need not be identical to the similar information permitted or required to be displayed under these rules.

8.5(2) *Guest state participation in interstate common pools.*

a. With the prior approval of the commission representative, pari-mutuel wagering pools may be combined with corresponding wagering pools in the host state, or with corresponding pools established by one or more other jurisdictions.

b. The commission representative may permit adjustment of the takeout from the pari-mutuel pool so that the takeout rate in this jurisdiction is identical to that of the host association, or identical to that of other jurisdictions participating in a merged pool.

c. When takeout rates in the merged pools are not identical, the net-price calculation shall be the method by which the differing takeout rates are applied.

d. Rules established in the state of the host association designated for a pari-mutuel pool shall apply.

e. The commission representative shall approve agreements made between the association and other participants in interstate common pools governing the distribution of breakage between the jurisdictions.

f. If, for any reason, it becomes impossible to successfully merge the bets placed into the interstate common pool, the association shall make payoffs in accordance with payoff prices that would have been in effect if prices for the pool of bets were calculated without regard to wagers placed elsewhere; except that, with the permission of the commission representative, the association may alternatively determine either to pay winning tickets at the payoff prices at the host association, or to declare such accepted bets void and make refunds in accordance with the applicable rules.

8.5(3) *Host state participation in merged pools.*

a. With the prior approval of the commission representative, an association licensed to conduct pari-mutuel wagering may determine that one or more of its contests be utilized for pari-mutuel wagering at guest facilities in other states and may also determine that pari-mutuel pools in guest states be combined with corresponding wagering pools established by it as the host association or comparable wagering pools established by two or more states.

b. When takeout rates in the merged pool are identical, the net-price calculation shall be the method by which the differing takeout rates are applied.

c. Rules of racing established for races held in this state shall also apply to interstate common pools unless the commission representative shall specifically determine otherwise.

d. The commission representative shall approve agreements made between the association and other participants in interstate common pools governing the distribution of breakage between the jurisdictions.

e. Any contract for interstate common pools entered into by the association shall contain a provision to the effect that if, for any reason, it becomes impossible to successfully merge the bets placed in another state into the interstate common pool formed by the association or if, for any reason, the commission representative or association determines that attempting to effect transfer of pool data from the guest state may endanger the association's wagering pool, the association shall have no liability for any measure taken which may result in the guest's wagers not being accepted into the pool.

8.5(4) *Takeout rates in interstate common pools.*

a. With the prior approval of the commission representative, an association wishing to participate in an interstate common pool may change its takeout rate so as to achieve a common takeout rate with all other participants in the interstate common pool.

b. An association wishing to participate in an interstate common pool may request that the commission representative approve a methodology whereby host association and guest association states with different takeout rates for corresponding pari-mutuel pools may effectively and equitably combine wagers from the different states into an interstate common pool.

491—8.6(99D) Advance deposit wagering.

8.6(1) *Definitions.*

"Account" means an account approved by the commission for advance deposit wagering with a complete record of credits, wagers and debits established by a licensee account holder and managed by a licensee or ADWO.

"Advance deposit wagering" means a method of pari-mutuel wagering in which an individual may establish an account, deposit money into the account, and use the account balance to pay for pari-mutuel wagering.

"Advance deposit wagering center" means an actual location, equipment, and staff of a licensee, ADWO, or both involved in the management, servicing and operation of advance deposit wagering for the licensee.

"Advance deposit wagering operator" or *"ADWO"* means an advance deposit wagering operator licensed by the commission who has entered into an agreement with the licensee of the horse racetrack in Polk County and the Iowa Horsemen's Benevolent and Protective Association to provide advance deposit wagering.

"Credits" means all positive inflows of money to an account.

"Debits" means all negative outflow of money from an account.

"Deposit" means a payment of money into an account.

"Licensee" means a horse racetrack located in Polk County operating under a license issued by the commission.

"Licensee account holder" means any individual at least 21 years of age who successfully completed an application and for whom the licensee or ADWO has opened an account. "Licensee account holder" does not include any corporation, partnership, limited liability company, trust, estate or other formal or nonformal entity.

"Proper identification" means a form of identification accepted in the normal course of business to establish that the person making a transaction is a licensee account holder.

"Secure personal identification code" means an alpha-numeric character code provided by a licensee account holder as a means by which the licensee or ADWO may verify a wager or account transaction as authorized by the licensee account holder.

"Source market fee" or *"host fee"* means the part of a wager made on any race by a person who is a licensee account holder that is returned to the licensee and the Iowa Horsemen's Benevolent and Protective Association pursuant to the terms of a negotiated agreement as required by these rules.

"Withdrawal" means a payment of money from an account by the licensee or ADWO to the licensee account holder when properly requested by the licensee account holder.

8.6(2) *Authorization to conduct advance deposit wagering.*

a. A licensee may request authorization from the commission to conduct advance deposit wagering pursuant to 2011 Iowa Acts, Senate File 526, section 7, and these rules. As part of the request, the licensee shall submit a detailed plan of how its advance deposit wagering system would operate. The commission may require changes in a proposed plan of operations as a condition of granting a request. No subsequent changes in the system's operation may occur unless ordered by the commission or until approval is obtained from the commission after it receives a written request.

b. The commission may conduct investigations or inspections or request additional information from the licensee as the commission deems appropriate in determining whether to allow the licensee to conduct advance deposit wagering.

c. The licensee shall establish and manage an advance deposit wagering center.

d. The commission may issue an ADWO license to an entity that enters into an agreement with the commission, licensee, and the Iowa Horsemen's Benevolent and Protective Association. The terms of any ADWO's license shall include but not be limited to:

(1) Any source market fees and host fees to be paid on any races subject to advance deposit wagering.

(2) An annual ADWO license fee in an amount to be determined by the commission.

(3) Completion of all necessary background investigations.

(4) Acceptance of wagers on live races conducted at the horse racetrack in Polk County from all of its licensee account holders.

(5) A bond or irrevocable letter of credit on behalf of the ADWO to be determined by the commission.

(6) A detailed description and certification of systems and procedures used by the ADWO to validate the identity and age of licensee account holders and to validate the legality of wagers accepted.

(7) Certification of prompt commission access to all records relating to licensee account holder identity and age in hard-copy or standard electronic format acceptable to the commission.

(8) Certification of secure retention of all records related to advance deposit wagering and accounts for a period of not less than three years or such longer period as specified by the commission.

(9) Utilization and communication of pari-mutuel wagers to a pari-mutuel system meeting all requirements for pari-mutuel systems employed by licensed racing facilities in Iowa.

e. Commission access to and use of information concerning advance deposit wager transactions and licensee account holders shall be considered proprietary, and such information shall not be disclosed publicly except as may be required pursuant to statute or court order or except as part of the official record of any proceeding before the commission. This requirement shall not prevent the sharing of this information with other pari-mutuel regulatory authorities or law enforcement agencies for investigative purposes.

f. For each advance deposit wager made for an account by telephone, the licensee or ADWO shall make a voice recording of the entire transaction and shall not accept any such wager if the voice-recording system is inoperable. Voice recordings shall be retained for not less than six months and shall be made available to the commission for investigative purposes.

8.6(3) *Establishing an account.*

a. A person must have an established account in order to place advance deposit wagers. An account may be established in person at the licensee's facility or with the ADWO by mail or electronic means. For establishing an account, the application must be signed or otherwise authorized in a manner acceptable to the commission and shall include: the applicant's full legal name, principal residence address, telephone number, and date of birth and any other information required by the commission.

b. Each application submitted will be subject to electronic verification with respect to the applicant's name, principal residence address and date of birth by either a national, independent individual reference service company or by means of a technology which meets or exceeds the reliability, security, accuracy, privacy and timeliness provided by individual reference service companies. An applicant's social security number may be necessary for completion of the verification process and for tax reporting purposes. If there is a discrepancy between the application submitted and the information provided by the electronic verification or if no information on the applicant is available from such electronic verification, another individual reference service may be accessed or another technology meeting the requirements described above may be used to verify the information provided. If these measures prove unsatisfactory, then the applicant will be contacted and given instructions as to how to resolve the matter.

c. The identity of a licensee account holder must be verified via electronic means or copies of other documents before the licensee account holder may place an advance deposit wager.

d. Each account shall have a unique identifying account number. The identifying account number may be changed at any time by the licensee or ADWO provided that the licensee or ADWO informs the licensee account holder in writing prior to the change.

e. The applicant shall provide the licensee or ADWO with an alpha-numeric code to be used as a secure personal identification code when the licensee account holder is placing an advance deposit wager. The licensee account holder has the right to change this code at any time.

f. The licensee account holder shall receive at the time the account is approved a unique account identification number; a copy of the advance deposit wagering rules and such other information and material pertinent to the operation of the account; and such other information as the licensee, ADWO or commission may deem appropriate.

g. The account is nontransferable.

h. The licensee or ADWO may close or refuse to open an account for what it deems good and sufficient reason and shall order an account closed if it is determined that information used to open an account was false or that the account has been used in violation of these rules or the licensee's or ADWO's terms and conditions.

8.6(4) *Operation of an account.* The ADWO shall submit operating procedures with respect to licensee account holder accounts for commission approval.

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ENVIRONMENTAL PROTECTION COMMISSION[567]

Former Water, Air and Waste Management[900], renamed by 1986 Iowa Acts, chapter 1245, Environmental Protection Commission under the "umbrella" of the Department of Natural Resources.

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WATER QUALITY STANDARDS

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[Prior to 7/1/83, DEQ Ch 3]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—22.1(455B) Permits required for new or existing stationary sources.

22.1(1) *Permit required.* Unless exempted in subrule 22.1(2) or to meet the parameters established in paragraph *"c"* of this subrule, no person shall construct, install, reconstruct or alter any equipment, control equipment or anaerobic lagoon without first obtaining a construction permit, or conditional permit, or permit pursuant to rule 567—22.8(455B), or permits required pursuant to rules 567—22.4(455B) and 567—22.5(455B) as required in this subrule. A permit shall be obtained prior to the initiation of construction, installation or alteration of any portion of the stationary source or anaerobic lagoon.

a. Existing sources. Sources built prior to September 23, 1970, are not subject to this subrule, unless they have been modified, reconstructed, or altered on or after September 23, 1970.

b. New or reconstructed major sources of hazardous air pollutants. No person shall construct or reconstruct a major source of hazardous air pollutants, as defined in 40 CFR 63.2 and 40 CFR 63.41 as amended through April 22, 2004, unless a construction permit has been obtained from the department, which requires maximum achievable control technology for new sources to be applied. The permit shall be obtained prior to the initiation of construction or reconstruction of the major source.

c. New, reconstructed, or modified sources may initiate construction prior to issuance of the construction permit by the department if they meet the eligibility requirements stated in subparagraph (1) below. The applicant must assume any liability for construction conducted on a source before the permit is issued. In no case will the applicant be allowed to hook up the equipment to the exhaust stack or operate the equipment in any way that may emit any pollutant prior to receiving a construction permit.

(1) Eligibility.

1. The applicant has submitted a construction permit application to the department, as specified in subrule 22.1(3);

2. The applicant has notified the department of the applicant's intentions in writing five working days prior to initiating construction; and

3. The source is not subject to rule 567—22.4(455B), 567—subrule 23.1(2), 567—subrule 23.1(3), 567—subrule 23.1(4), 567—subrule 23.1(5), or paragraph *"b"* of this subrule. Prevention of significant deterioration (PSD) provisions and prohibitions remain applicable until a proposed project legally obtains PSD synthetic minor status (i.e., obtains permitted limits which limit the source below the PSD thresholds).

(2) The applicant must cease construction if the department's evaluation demonstrates that the construction, reconstruction or modification of the source will interfere with the attainment or maintenance of the national ambient air quality standards or will result in a violation of a control strategy required by 40 CFR Part 51, Subpart G, as amended through August 12, 1996.

(3) The applicant will be required to make any modification to the source that may be imposed in the issued construction permit.

(4) The applicant must notify the department of the date that construction or reconstruction actually started. All notifications shall be submitted to the department in writing no later than 30 days after construction or reconstruction started. All notifications shall include all of the information listed in 22.3(3)*"b."*

d. Permit requirements for country grain elevators, country grain terminal elevators, grain terminal elevators, and feed mill equipment. The owner or operator of a country grain elevator, country grain terminal elevator, grain terminal elevator or feed mill equipment, as "country grain elevator," "country grain terminal elevator," "grain terminal elevator," and "feed mill equipment" are defined in subrule 22.10(1), may elect to comply with the requirements specified in rule 567—22.10(455B) for equipment at these facilities.

22.1(2) *Exemptions.* The requirement to obtain a permit in 567—subrule 22.1(1) is not required for the equipment, control equipment, and processes listed in this subrule. The permitting exemptions in this subrule do not relieve the owner or operator of any source from any obligation to comply with any other applicable requirements. Equipment, control equipment, or processes subject to rule 567—22.4(455B), prevention of significant deterioration requirements, or rule 567—22.5(455B), special requirements for nonattainment areas, may not use the exemptions from construction permitting listed in this subrule. Equipment, control equipment, or processes subject to 567—subrule 23.1(2), new source performance standards (40 CFR Part 60 NSPS); 567—subrule 23.1(3), emission standards for hazardous air pollutants (40 CFR Part 61 NESHAP); 567—subrule 23.1(4), emission standards for hazardous air pollutants for source categories (40 CFR Part 63 NESHAP); or 567—subrule 23.1(5), emission guidelines, may still use the exemptions from construction permitting listed in this subrule provided that a permit is not needed to create federally enforceable limits that restrict potential to emit. If equipment is permitted under the provisions of rule 567—22.8(455B), then no other exemptions shall apply to that equipment.

Records shall be kept at the facility for exemptions that have been claimed under the following paragraphs: 22.1(2)*"a"* (for equipment > 1 million Btu per hour input), 22.1(2)*"b,"* 22.1(2)*"e,"* 22.1(2)*"r"* or 22.1(2)*"s."* The records shall contain the following information: the specific exemption claimed and a description of the associated equipment. These records shall be made available to the department upon request.

The following paragraphs are applicable to 22.1(2)*"g"* and *"i."* A facility claiming to be exempt under the provisions of paragraph *"g"* or *"i"* shall provide to the department the information listed below. If the exemption is claimed for a source not yet constructed or modified, the information shall be provided to the department at least 30 days in advance of the beginning of construction on the project. If the exemption is claimed for a source that has already been constructed or modified and that does not have a construction permit for that construction or modification, the information listed below shall be provided to the department within 60 days of March 20, 1996. After that date, if the exemption is claimed by a source that has already been constructed or modified and that does not have a construction permit for that construction or modification, the source shall not operate until the information listed below is provided to the department:

- A detailed emissions estimate of the actual and potential emissions, specifically noting increases or decreases, for the project for all regulated pollutants (as defined in rule 567—22.100(455B)), accompanied by documentation of the basis for the emissions estimate;
- A detailed description of each change being made;
- The name and location of the facility;
- The height of the emission point or stack and the height of the highest building within 50 feet;
- The date for beginning actual construction and the date that operation will begin after the changes are made;
- A statement that the provisions of rules 567—22.4(455B) and 567—22.5(455B) do not apply; and
- A statement that the accumulated emissions increases associated with each change under paragraph 22.1(2)*"i,"* when totaled with other net emissions increases at the facility contemporaneous with the proposed change (occurring within five years before construction on the particular change commences), have not exceeded significant levels, as defined in 40 CFR 52.21(b)(23) as amended through March 12, 1996, and adopted in rule 567—22.4(455B), and will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28. This statement shall be accompanied by documentation for the basis of these statements.

The written statement shall contain certification by a responsible official as defined in rule 567—22.100(455B) of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

a. Fuel-burning equipment for indirect heating and reheating furnaces or cooling units using natural gas or liquefied petroleum gas with a capacity of less than ten million Btu per hour input per combustion unit.

b. Fuel-burning equipment for indirect heating or cooling with a capacity of less than 1 million Btu per hour input per combustion unit when burning coal, untreated wood, untreated seeds or pellets, other untreated vegetative materials, or fuel oil. Used oils meeting the specification from 40 CFR 279.11 as amended through May 3, 1993, are acceptable fuels for this exemption.

c. Mobile internal combustion and jet engines, marine vessels and locomotives.

d. Equipment used for cultivating land, harvesting crops, or raising livestock other than anaerobic lagoons. This exemption is not applicable if the equipment is used to remove substances from grain which were applied to the grain by another person. This exemption is also not applicable to equipment used by a person to manufacture commercial feed, as defined in Iowa Code section 198.3, which is normally not fed to livestock, owned by the person or another person, in a feedlot, as defined in Iowa Code section 172D.1, subsection 6, or a confinement building owned or operated by that person and located in this state.

e. Incinerators and pyrolysis cleaning furnaces with a rated refuse burning capacity of less than 25 pounds per hour. Pyrolysis cleaning furnace exemption is limited to those units that use only natural gas or propane. Salt bath units are not included in this exemption.

f. Fugitive dust controls unless a control efficiency can be assigned to the equipment or control equipment.

g. Equipment or control equipment which reduces or eliminates all emission to the atmosphere. If a source wishes to obtain credit for emission reductions, a permit must be obtained for the reduction prior to the time the reduction is made. If a construction permit has been previously issued for the equipment or control equipment, all other conditions of the construction permit remain in effect.

h. Equipment (other than anaerobic lagoons) or control equipment which emits odors unless such equipment or control equipment also emits particulate matter, or any other regulated air contaminant (as defined in rule 567—22.100(455B)).

i. Construction, modification or alteration to equipment which will not result in a net emissions increase (as defined in paragraph 22.5(1)*"f"*) of more than 1.0 lb/hr of any regulated air pollutant (as defined in rule 567—22.100(455B)). Emission reduction achieved through the installation of control equipment, for which a construction permit has not been obtained, does not establish a limit to potential emissions.

Hazardous air pollutants (as defined in rule 567—22.100(455B)) are not included in this exemption except for those listed in Table 1. Further, the net emissions rate INCREASE must not equal or exceed the values listed in Table 1.

Table 1

Pollutant	Ton/year
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Vinyl Chloride	1
Fluorides	3

This exemption is ONLY applicable to vertical discharges with the exhaust stack height 10 or more feet above the highest building within 50 feet. If a construction permit has been previously issued for the equipment or control equipment, the conditions of the construction permit remain in effect. In order to use this exemption, the facility must comply with the information submission to the department as described above.

The department reserves the right to require proof that the expected emissions from the source which is being exempted from the air quality construction permit requirement, in conjunction with all other emissions, will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28. If the department finds, at any time after a change has been made pursuant to this exemption, evidence of violations of any of the department's rules, the department may require

the source to submit to the department sufficient information to determine whether enforcement action should be taken. This information may include, but is not limited to, any information that would have been submitted in an application for a construction permit for any changes made by the source under this exemption, and air quality dispersion modeling.

j. Residential heaters, cookstoves, or fireplaces, which burn untreated wood, untreated seeds or pellets, or other untreated vegetative materials.

k. Asbestos demolition and renovation projects subject to 40 CFR 61.145 as amended through January 16, 1991.

l. The equipment in laboratories used exclusively for nonproduction chemical and physical analyses. Nonproduction analyses means analyses incidental to the production of a good or service and includes analyses conducted for quality assurance or quality control activities, or for the assessment of environmental impact.

m. Storage tanks with a capacity of less than 19,812 gallons and an annual throughput of less than 200,000 gallons.

n. Stack or vents to prevent escape of sewer gases through plumbing traps. Systems which include any industrial waste are not exempt.

o. A nonproduction surface coating process that uses only hand-held aerosol spray cans.

p. Brazing, soldering or welding equipment or portable cutting torches used only for nonproduction activities.

q. Cooling and ventilating equipment: Comfort air conditioning not designed or used to remove air contaminants generated by, or released from, specific units of equipment.

r. An internal combustion engine with a brake horsepower rating of less than 400 measured at the shaft, provided that the owner or operator meets all of the conditions in this paragraph. For the purposes of this exemption, the manufacturer's nameplate rated capacity at full load shall be defined as the brake horsepower output at the shaft. The owner or operator of an engine that was manufactured, ordered, modified or reconstructed after March 18, 2009, may use this exemption only if the owner or operator, prior to installing, modifying or reconstructing the engine, submits to the department a completed registration, on forms provided by the department, certifying that the engine is in compliance with the following federal regulations:

(1) New source performance standards (NSPS) for stationary compression ignition internal combustion engines (40 CFR Part 60, Subpart IIII); or

(2) New source performance standards (NSPS) for stationary spark ignition internal combustion engines (40 CFR Part 60, Subpart JJJJ); and

(3) National emission standards for hazardous air pollutants (NESHAP) for reciprocating internal combustion engines (40 CFR Part 63, Subpart ZZZZ).

Use of this exemption does not relieve an owner or operator from any obligation to comply with NSPS or NESHAP requirements.

s. Equipment that is not related to the production of goods or services and used exclusively for academic purposes, located at educational institutions (as defined in Iowa Code section 455B.161). The equipment covered under this exemption is limited to: lab hoods, art class equipment, wood shop equipment in classrooms, wood fired pottery kilns, and fuel-burning units with a capacity of less than one million Btu per hour fuel capacity. This exemption does not apply to incinerators.

t. Any container, storage tank, or vessel that contains a fluid having a maximum true vapor pressure of less than 0.75 psia. "Maximum true vapor pressure" means the equilibrium partial pressure of the material considering:

- For material stored at ambient temperature, the maximum monthly average temperature as reported by the National Weather Service, or
- For material stored above or below the ambient temperature, the temperature equal to the highest calendar-month average of the material storage temperature.

u. Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sandblast cleaning, shot blasting, shot peening, or polishing ceramic artwork,

leather, metals (other than beryllium), plastics, concrete, rubber, paper stock, and wood or wood products, where such equipment is either used for nonproduction activities or exhausted inside a building.

v. Manually operated equipment, as defined in rule 567—22.100(455B), used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, scarfing, surface grinding, or turning.

w. Small unit exemption.

(1) "Small unit" means any emission unit and associated control (if applicable) that emits less than the following:

1. 40 pounds per year of lead and lead compounds expressed as lead;
2. 5 tons per year of sulfur dioxide;
3. 5 tons per year of nitrogen oxides;
4. 5 tons per year of volatile organic compounds;
5. 5 tons per year of carbon monoxide;
6. 5 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp));
7. 2.5 tons per year of PM10; or
8. 5 tons per year of hazardous air pollutants (as defined in rule 567—22.100(455B)).

For the purposes of this exemption, "emission unit" means any part or activity of a stationary source that emits or has the potential to emit any pollutant subject to regulation under the Act. This exemption applies to existing and new or modified "small units."

An emission unit that emits hazardous air pollutants (as defined in rule 567—22.100(455B)) is not eligible for this exemption if the emission unit is required to be reviewed for compliance with 567—subrule 23.1(3), emission standards for hazardous air pollutants (40 CFR 61, NESHAP), or 567—subrule 23.1(4), emission standards for hazardous air pollutants for source categories (40 CFR 63, NESHAP).

An emission unit that emits air pollutants that are not regulated air pollutants as defined in rule 567—22.100(455B) shall not be eligible to use this exemption.

(2) Permit requested. If requested in writing by the owner or operator of a small unit, the director may issue a construction permit for the emission point associated with that emission unit.

(3) An owner or operator that utilizes the small unit exemption must maintain on site an "exemption justification document." The exemption justification document must document conformance and compliance with the emission rate limits contained in the definition of "small unit" for the particular emission unit or group of similar emission units obtaining the exemption. Controls which may be part of the exemption justification document include, but are not limited to, the following: emission control devices, such as cyclones, filters, or baghouses; restricted hours of operation or fuel; and raw material or solvent substitution. The exemption justification document for an emission unit or group of similar emission units must be made available for review during normal business hours and for state or EPA on-site inspections, and shall be provided to the director or the director's representative upon request. If an exemption justification document does not exist, the applicability of the small unit exemption is voided for that particular emission unit or group of similar emission units. The controls described in the exemption justification document establish a limit on the potential emissions. An exemption justification document shall include the following for each applicable emission unit or group of similar emission units:

1. A narrative description of how the emissions from the emission unit or group of similar emission units were determined and maintained at or below the annual small unit exemption levels.
2. If air pollution control equipment is used, a description of the air pollution control equipment used on the emission unit or group of similar emission units and a statement that the emission unit or group of similar emission units will not be operated without the pollution control equipment operating.
3. If air pollution control equipment is used, applicant shall maintain a copy of any report of manufacturer's testing results of any emissions test, if available. The department may require a test if it believes that a test is necessary for the exemption claim.
4. A description of all production limits required for the emission unit or group of similar emission units to comply with the exemption levels.

5. Detailed calculations of emissions reflecting the use of any air pollution control devices or production or throughput limitations, or both, for applicable emission unit or group of similar emission units.

6. Records of actual operation that demonstrate that the annual emissions from the emission unit or group of similar emission units were maintained below the exemption levels.

7. Facilities designated as major sources with respect to rules 567—22.4(455B) and 567—22.101(455B), or subject to any applicable federal requirements, shall retain all records demonstrating compliance with the exemption justification document for five years. The record retention requirements supersede any retention conditions of an individual exemption.

8. A certification from the responsible official that the emission unit or group of similar emission units have complied with the exemption levels specified in 22.1(2)*"w"*(1).

(4) Requirement to apply for a construction permit. An owner or operator of a small unit will be required to obtain a construction permit or take the unit out of service if the emission unit exceeds the small unit emission levels.

1. If, during an inspection or other investigation of a facility, the department believes that the emission unit exceeds the emission levels that define a "small unit," then the department will submit calculations and detailed information in a letter to the owner or operator. The owner or operator shall have 60 days to respond with detailed calculations and information to substantiate a claim that the small unit does not exceed the emission levels that define a small unit.

2. If the owner or operator is unable to substantiate a claim to the satisfaction of the department, then the owner or operator that has been using the small unit exemption must cease operation of that small unit or apply for a construction permit for that unit within 90 days after receiving a letter of notice from the department. The emission unit and control equipment may continue operation during this period and the associated initial application review period.

3. If the notification of nonqualification as a small unit is made by the department following the process described above, the owner or operator will be deemed to have constructed an emission unit without the required permit and may be subject to applicable penalties.

(5) Required notice for construction or modification of a "substantial small unit." The owner or operator shall notify the department in writing at least 10 days prior to commencing construction of any new or modified "substantial small unit" as defined in 22.1(2)*"w"*(6). The owner or operator shall notify the department within 30 days after determining an existing small unit meets the criteria of the "substantial small unit" as defined in 22.1(2)*"w"*(6). Notification shall include the name of the business, the location where the unit will be installed, and information describing the unit and quantifying its emissions. The owner or operator shall notify the department within 90 days of the end of the calendar year for which the aggregate emissions from substantial small units at the facility have reached any of the cumulative notice thresholds listed below.

(6) For the purposes of this paragraph, "substantial small unit" means a small unit which emits more than the following amounts, as documented in the exemption justification document:

1. 30 pounds per year of lead and lead compounds expressed as lead;
2. 3.75 tons per year of sulfur dioxide;
3. 3.75 tons per year of nitrogen oxides;
4. 3.75 tons per year of volatile organic compounds;
5. 3.75 tons per year of carbon monoxide;
6. 3.75 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp));
7. 1.875 tons per year of PM10; or
8. 3.75 tons per year of any hazardous air pollutant or 3.75 tons per year of any combination of hazardous air pollutants.

An emission unit is a "substantial small unit" only for those substances for which annual emissions exceed the above-indicated amounts.

(7) Required notice that a cumulative notice threshold has been reached. Once a "cumulative notice threshold," as defined in 22.1(2)*"w"*(8), has been reached for any of the listed pollutants, the owner or

operator at the facility must apply for air construction permits for all substantial small units for which the cumulative notice threshold for the pollutant(s) in question has been reached. The owner or operator shall have 90 days from the date it determines that the cumulative notice threshold has been reached in which to apply for construction permit(s). The owner or operator shall submit a letter to the department, within 5 working days of making this determination, establishing the date the owner or operator determined that the cumulative notice threshold had been reached.

(8) "Cumulative notice threshold" means the total combined emissions from all substantial small units using the small unit exemption which emit at the facility the following amounts, as documented in the exemption justification document:

1. 0.6 tons per year of lead and lead compounds expressed as lead;
2. 40 tons per year of sulfur dioxide;
3. 40 tons per year of nitrogen oxides;
4. 40 tons per year of volatile organic compounds;
5. 100 tons per year of carbon monoxide;
6. 25 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp));
7. 15 tons per year of PM10; or
8. 10 tons per year of any hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants.

x. The following equipment, processes, and activities:

(1) Cafeterias, kitchens, and other facilities used for preparing food or beverages primarily for consumption at the source.

(2) Consumer use of office equipment and products, not including printers or businesses primarily involved in photographic reproduction.

(3) Janitorial services and consumer use of janitorial products.

(4) Internal combustion engines used for lawn care, landscaping, and groundskeeping purposes.

(5) Laundry activities located at a stationary source that uses washers and dryers to clean, with water solutions of bleach or detergents, or to dry clothing, bedding, and other fabric items used on site. This exemption does not include laundry activities that use dry cleaning equipment or steam boilers.

(6) Bathroom vent emissions, including toilet vent emissions.

(7) Blacksmith forges.

(8) Plant maintenance and upkeep activities and repair or maintenance shop activities (e.g., groundskeeping, general repairs, cleaning, painting, welding, plumbing, retarring roofs, installing insulation, and paving parking lots), provided that these activities are not conducted as part of manufacturing process, are not related to the source's primary business activity, and do not otherwise trigger a permit modification. Cleaning and painting activities qualify if they are not subject to control requirements for volatile organic compounds or hazardous air pollutants as defined in rule 567—22.100(455B).

(9) Air compressors and vacuum, pumps, including hand tools.

(10) Batteries and battery charging stations, except at battery manufacturing plants.

(11) Equipment used to store, mix, pump, handle or package soaps, detergents, surfactants, waxes, glycerin, vegetable oils, greases, animal fats, sweetener, corn syrup, and aqueous salt or caustic solutions, provided that appropriate lids and covers are utilized and that no organic solvent has been mixed with such materials.

(12) Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.

(13) Vents from continuous emissions monitors and other analyzers.

(14) Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.

(15) Equipment used by surface coating operations that apply the coating by brush, roller, or dipping, except equipment that emits volatile organic compounds or hazardous air pollutants as defined in rule 567—22.100(455B).

(16) Hydraulic and hydrostatic testing equipment.

(17) Environmental chambers not using gases which are hazardous air pollutants as defined in rule 567—22.100(455B).

(18) Shock chambers, humidity chambers, and solar simulators.

(19) Fugitive dust emissions related to movement of passenger vehicles on unpaved road surfaces, provided that the emissions are not counted for applicability purposes and that any fugitive dust control plan or its equivalent is submitted as required by the department.

(20) Process water filtration systems and demineralizers, demineralized water tanks, and demineralizer vents.

(21) Boiler water treatment operations, not including cooling towers or lime silos.

(22) Oxygen scavenging (deaeration) of water.

(23) Fire suppression systems.

(24) Emergency road flares.

(25) Steam vents, safety relief valves, and steam leaks.

(26) Steam sterilizers.

(27) Application of hot melt adhesives from closed-pot systems using polyolefin compounds, polyamides, acrylics, ethylene vinyl acetate and urethane material when stored and applied at the manufacturer's recommended temperatures. Equipment used to apply hot melt adhesives shall have a safety device that automatically shuts down the equipment if the hot melt temperature exceeds the manufacturer's recommended application temperature.

y. Direct-fired equipment burning natural gas, propane, or liquefied propane with a capacity of less than 10 million Btu per hour input, and direct-fired equipment burning fuel oil with a capacity of less than 1 million Btu per hour input, with emissions that are attributable only to the products of combustion. Emissions other than those attributable to the products of combustion shall be accounted for in an enforceable permit condition or shall otherwise be exempt under this subrule.

z. Closed refrigeration systems, including storage tanks used in refrigeration systems, but excluding any combustion equipment associated with such systems.

aa. Pretreatment application processes that use aqueous-based chemistries designed to clean a substrate, provided that the chemical concentrate contains no more than 5 percent organic solvents by weight. This exemption includes pretreatment processes that use aqueous-based cleaners, cleaner-phosphatizers, and phosphate conversion coating chemistries.

bb. Indoor-vented powder coating operations with filters or powder recovery systems.

cc. Electric curing ovens or curing ovens that run on natural gas or propane with a maximum heat input of less than 10 million Btu per hour and that are used for powder coating operations, provided that the total cured powder usage is less than 75 tons of powder per year at the stationary source. Records shall be maintained on site by the owner or operator for a period of at least two calendar years to demonstrate that cured powder usage is less than the exemption threshold.

dd. Each production painting, adhesive or coating unit using an application method other than a spray system and associated cleaning operations that use 1,000 gallons or less of coating and solvents annually, unless the production painting, adhesive or coating unit and associated cleaning operations are subject to work practice, process limits, emissions limits, stack testing, record-keeping or reporting requirements under 567—subrule 23.1(2), 567—subrule 23.1(3), or 567—subrule 23.1(4). Records shall be maintained on site by the owner or operator for a period of at least two calendar years to demonstrate that paint, adhesive, or solvent usage is at or below the exemption threshold.

ee. Any production surface coating activity that uses only nonrefillable hand-held aerosol cans, where the total volatile organic compound emissions from all these activities at a stationary source do not exceed 5.0 tons per year.

ff. Production welding.

(1) Welding using a consumable electrode, provided that the consumable electrodes used fall within American Welding Society specification A5.18/A5.18M for Gas Metal Arc Welding (GMAW), A5.1 or A5.5 for Shielded Metal Arc Welding (SMAW), and A5.20 for Flux Core Arc Welding (FCAW), and provided that the quantity of all electrodes used at the stationary source of the acceptable specifications is below 200,000 pounds per year for GMAW and 28,000 pounds per year for SMAW or FCAW. Records

that identify the type and annual amount of welding electrode used shall be maintained on site by the owner or operator for a period of at least two calendar years.

For stationary sources where electrode usage exceeds these levels, the welding activity at the stationary source may be exempted if the amount of electrode used (Y) is less than:

Y = the greater of 1380x - 19,200 or 200,000 for GMAW, or

Y = the greater of 187x - 2,600 or 28,000 for SMAW or FCAW

Where x is the minimum distance to the property line in feet, and Y is the annual electrode usage in pounds per year.

If the stationary source has welding processes that fit into both of the specified exemptions, the most stringent limits must be applied.

(2) Resistance welding, submerged arc welding, or arc welding that does not use a consumable electrode, provided that the base metals do not include stainless steel, alloys of lead, alloys of arsenic, or alloys of beryllium and provided that the base metals are uncoated, excluding manufacturing process lubricants.

gg. Electric hand soldering, wave soldering, and electric solder paste reflow ovens.

hh. Pressurized piping and storage systems for natural gas, propane, liquefied petroleum gas (LPG), and refrigerants, where emissions could only result from an upset condition.

ii. Emissions from the storage and mixing of paints and solvents associated with the painting operations, provided that the emissions from the storage and mixing are accounted for in an enforceable permit condition or are otherwise exempt.

jj. Product labeling using laser and ink-jet printers with target distances less than or equal to six inches and an annual material throughput of less than 1,000 gallons per year as calculated on a stationary sourcewide basis.

kk. Equipment related to research and development activities at a stationary source, provided that:

(1) Actual emissions from all research and development activities at the stationary source based on a 12-month rolling total are less than the following levels:

40 pounds per year of lead and lead compounds expressed as lead;

5 tons per year of sulfur dioxide;

5 tons per year of nitrogen dioxides;

5 tons per year of volatile organic compounds;

5 tons per year of carbon monoxide;

5 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp) as amended through November 29, 2004);

2.5 tons per year of PM10; and

5 tons per year of hazardous pollutants (as defined in rule 567—22.100(455B)); and

(2) The owner or operator maintains records of actual operations demonstrating that the annual emissions from all research and development activities conducted under this exemption are below the levels listed in subparagraph (1) above. These records shall:

1. Include a list of equipment that is included under the exemption;

2. Include records of actual operation and detailed calculations of actual annual emissions, reflecting the use of any control equipment and demonstrating that the emissions are below the levels specified in the exemption;

3. Include, if air pollution equipment is used in the calculation of emissions, a copy of any report of manufacturer's testing, if available. The department may require a test if it believes that a test is necessary for the exemption claim; and

4. Be maintained on site for a minimum of two years, be made available for review during normal business hours and for state and EPA on-site inspections, and be provided to the director or the director's designee upon request. Facilities designated as major sources pursuant to rules 567—22.4(455B) and 567—22.101(455B), or subject to any applicable federal requirements, shall retain all records demonstrating compliance with this exemption for five years.

(3) An owner or operator using this exemption obtains a construction permit or ceases operation of equipment if operation of the equipment would cause the emission levels listed in this exemption to be exceeded.

For the purposes of this exemption, "research and development activities" shall be defined as activities:

1. That are operated under the close supervision of technically trained personnel; and

2. That are conducted for the primary purpose of theoretical research or research and development into new or improved processes and products; and

3. That do not manufacture more than de minimis amounts of commercial products; and

4. That do not contribute to the manufacture of commercial products by collocated sources in more than a de minimis manner.

ll. A regional collection center (RCC), as defined in 567—Chapter 211, involved in the processing of permitted hazardous materials from households and conditionally exempt small quantity generators (CESQG), not to exceed 1,200,000 pounds of VOC containing material in a 12-month rolling period. Latex paint drying may not exceed 120,000 pounds per year on a 12-month rolling total. Other nonprocessing emission units (e.g., standby generators and waste oil heaters) shall not be eligible to use this exemption.

mm. Cold solvent cleaning machines that are not in-line cleaning machines, where the maximum vapor pressure of the solvents used shall not exceed 0.7 kPa (5 mmHg or 0.1 psi) at 20^{o}C (68^{o}F). The machine must be equipped with a tightly fitted cover or lid that shall be closed at all times except during parts entry and removal. This exemption cannot be used for cold solvent cleaning machines that use solvent containing methylene chloride (CAS # 75-09-2), perchloroethylene (CAS # 127-18-4), trichloroethylene (CAS # 79-01-6), 1,1,1-trichloroethane (CAS # 71-55-6), carbon tetrachloride (CAS # 56-23-5) or chloroform (CAS # 67-66-3), or any combination of these halogenated HAP solvents in a total concentration greater than 5 percent by weight.

nn. Emissions from mobile over-the-road trucks, and mobile agricultural and construction internal combustion engines that are operated only for repair or maintenance purposes at equipment repair shops or equipment dealerships, and only when the repair shops or equipment dealerships are not major sources as defined in rule 567—22.100(455B).

oo. A non-road diesel fueled engine, as defined in 40 CFR 1068.30 and as amended through October 8, 2008, with a brake horsepower rating of less than 1,100 at full load measured at the shaft, used to conduct periodic testing and maintenance on natural gas pipelines. For the purposes of this exemption, the manufacturer's nameplate rating shall be defined as the brake horsepower output at the shaft at full load.

(1) To qualify for the exemption, the engine must:

1. Be used for periodic testing and maintenance on natural gas pipelines outside the compressor station, which shall not exceed 330 hours in any 12-month consecutive period at a single location; or

2. Be used for periodic testing and maintenance on natural gas pipelines within the compressor station, which shall not exceed 330 hours in any 12-month consecutive period.

(2) The owner or operator shall maintain a monthly record of the number of hours the engine operated and a record of the rolling 12-month total of the number of hours the engine operated for each location outside the compressor station and within the compressor station. These records shall be maintained for two years. Records shall be made available to the department upon request.

(3) This exemption shall not apply to the replacement or substitution of engines for backup power generation at a pipeline compressor station.

22.1(3) *Construction permits.* The owner or operator of a new or modified stationary source shall apply for a construction permit unless a conditional permit is required by Iowa Code chapter 455B or subrule 22.1(4) or requested by the applicant in lieu of a construction permit. Two copies of a construction permit application for a new or modified stationary source shall be presented or mailed to Department of Natural Resources, Air Quality Bureau, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324. Alternatively, the owner or operator may apply for a construction permit for a new or modified stationary source through the electronic submittal format specified by the department. The owner or operator of any

new or modified industrial anaerobic lagoon or a new or modified anaerobic lagoon for an animal feeding operation other than a small operation as defined in rule 567—65.1(455B) shall apply for a construction permit. Two copies of a construction permit application for an anaerobic lagoon shall be presented or mailed to Department of Natural Resources, Water Quality Bureau, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319.

a. New equipment design in concept review. If requested in writing, the director will review the design concepts of proposed new equipment and associated control equipment prior to application for a construction permit. The purpose of the review would be to determine the acceptability of the location of the proposed equipment. If the review is requested, the requester shall supply the following information:

(1) Preliminary plans and specifications of proposed equipment and related control equipment.

(2) The exact site location and a plot plan of the immediate area, including the distance to and height of nearby buildings and the estimated location and elevation of the emission points.

(3) The estimated emission rates of any air contaminants which are to be considered.

(4) The estimated exhaust gas temperature, velocity at the point of discharge, and stack diameter at the point of discharge.

(5) An estimate of when construction would begin and when construction would be completed.

b. Construction permit applications. Each application for a construction permit shall be submitted to the department on the form "Air Construction Permit Application." Final plans and specifications for the proposed equipment or related control equipment shall be submitted with the application for a permit and shall be prepared by or under the direct supervision of a professional engineer licensed in the state of Iowa in conformance with Iowa Code section 542B.1, or consistent with the provisions of Iowa Code section 542B.26 for any full-time employee of any corporation while doing work for that corporation. The application for a permit to construct shall include the following information:

(1) A description of the equipment or control equipment covered by the application;

(2) A scaled plot plan, including the distance and height of nearby buildings, and the location and elevation of existing and proposed emission points;

(3) The composition of the effluent stream, both before and after any control equipment with estimates of emission rates, concentration, volume and temperature;

(4) The physical and chemical characteristics of the air contaminants;

(5) The proposed dates and description of any tests to be made by the owner or operator of the completed installation to verify compliance with applicable emission limits or standards of performance;

(6) Information pertaining to sampling port locations, scaffolding, power sources for operation of appropriate sampling instruments, and pertinent allied facilities for making tests to ascertain compliance;

(7) Any additional information deemed necessary by the department to determine compliance with or applicability of rules 567—22.4(455B) and 567—22.5(455B); and

(8) Application for a case-by-case MACT determination. If the source meets the definition of construction or reconstruction of a major source of hazardous air pollutants, as defined in paragraph 22.1(1)*"b,"* then the owner or operator shall submit an application for a case-by-case MACT determination, as required in subparagraph 23.1(4)*"b"*(1), with the construction permit application. In addition to this paragraph, an application for a case-by-case MACT determination shall include the following information:

1. The hazardous air pollutants (HAP) emitted by the constructed or reconstructed major source, and the estimated emission rate for each HAP, to the extent this information is needed by the permitting authority to determine MACT;

2. Any federally enforceable emission limitations applicable to the constructed or reconstructed major source;

3. The maximum and expected utilization of capacity of the constructed or reconstructed major source, and the associated uncontrolled emission rates for that source, to the extent this information is needed by the permitting authority to determine MACT;

4. The controlled emissions for the constructed or reconstructed major source in tons/yr at expected and maximum utilization of capacity to the extent this information is needed by the permitting authority to determine MACT;

5. A recommended emission limitation for the constructed or reconstructed major source consistent with the principles set forth in 40 CFR Part 63.43(d) as amended through December 27, 1996;

6. The selected control technology to meet the recommended MACT emission limitation, including technical information on the design, operation, size, estimated control efficiency of the control technology (and the manufacturer's name, address, telephone number, and relevant specifications and drawings, if requested by the permitting authority);

7. Supporting documentation including identification of alternative control technologies considered by the applicant to meet the emission limitation, and analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology;

8. An identification of any listed source category or categories in which the major source is included.

(9) A signed statement that ensures the applicant's legal entitlement to install and operate equipment covered by the permit application on the property identified in the permit application. A signed statement shall not be required for rock crushers, portable concrete or asphalt equipment used in conjunction with specific identified construction projects which are intended to be located at a site only for the duration of the specific, identified construction project.

c. Application requirements for anaerobic lagoons. The application for a permit to construct an anaerobic lagoon shall include the following information:

(1) The source of the water being discharged to the lagoon;

(2) A plot plan, including distances to nearby residences or occupied buildings, local land use zoning maps of the vicinity, and a general description of the topography in the vicinity of the lagoon;

(3) In the case of an animal feeding operation, the information required in rule 567—65.15(455B);

(4) In the case of an industrial source, a chemical description of the waste being discharged to the lagoon;

(5) A report of sulfate analyses conducted on the water to be used for any purpose in a livestock operation proposing to use an anaerobic lagoon. The report shall be prepared by using standard methods as defined in 567—60.2(455B);

(6) A description of available water supplies to prove that adequate water is available for dilution;

(7) In the case of an animal feeding operation, a waste management plan describing the method of waste collection and disposal and the land to be used for disposal. Evidence that the waste disposal equipment is of sufficient size to dispose of the wastes within a 20-day period per year shall also be provided;

(8) Any additional information needed by the department to determine compliance with these rules.

22.1(4) *Conditional permits.* The owner or operator of any new or modified major stationary source may elect to apply for a conditional permit in lieu of a construction permit. Electric power generating facilities with a total capacity of 100 megawatts or more are required to apply for a conditional permit.

a. Applicability determination. If requested in writing, the director will make a preliminary determination of nonattainment applicability pursuant to rules 567—22.4(455B) and 567—22.5(455B), based upon the information supplied by the requester.

b. Conditional permit applications. Each application for a conditional permit shall be submitted to the department in writing and shall consist of the following items:

(1) The results of an air quality impact analysis which characterizes preconstruction air quality and the air quality impacts of facility construction and operation. A quality assurance plan for the preconstruction air monitoring where required in accordance with 40 Code of Federal Regulations Part 58 as amended through July 18, 1997, shall also be submitted.

(2) A description of equipment and pollution control equipment design parameters.

(3) Preliminary plans and specifications showing major equipment items and location.

(4) The fuel specifications of any anticipated energy source, and assurances that any proposed energy source will be utilized.

(5) Certification that the preliminary plans and specifications for the equipment and related control equipment have been prepared by or under the direct supervision of a professional engineer registered in the state of Iowa in conformance with Iowa Code chapter 542B.

(6) An estimate of when construction would begin and when construction would be completed.

(7) Any additional information deemed necessary by the department to determine compliance with or applicability of rules 567—22.4(455B) and 567—22.5(455B).

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 7565B**, IAB 2/11/09, effective 3/18/09; **ARC 8215B**, IAB 10/7/09, effective 11/11/09]

567—22.2(455B) Processing permit applications.

22.2(1) *Incomplete applications.* The department will notify the applicant whether the application is complete or incomplete. If the application is found by the department to be incomplete upon receipt, the applicant will be notified within 30 days of that fact and of the specific deficiencies. Sixty days following such notification, the application may be denied for lack of information. When this schedule would cause undue hardship to an applicant, or the applicant has a compelling need to proceed promptly with the proposed installation, modification or location, a request for priority consideration and the justification therefor shall be submitted to the department.

22.2(2) *Public notice and participation.* A notice of intent to issue a conditional or construction permit to a major stationary source shall be published by the department in a newspaper having general circulation in the area affected by the emissions of the proposed source. The notice and supporting documentation shall be made available for public inspection upon request from the department's central office. Publication of the notice shall be made at least 30 days prior to issuing a permit and shall include the department's evaluation of ambient air impacts. The public may submit written comments or request a public hearing. If the response indicates significant interest, a public hearing may be held after due notice.

22.2(3) *Final notice.* The department shall notify the applicant in writing of the issuance or denial of a construction or conditional permit as soon as practicable and at least within 120 days of receipt of the completed application. This shall not apply to applicants for electric generating facilities subject to Iowa Code chapter 476A.

This rule is intended to implement Iowa Code section 455B.133.

567—22.3(455B) Issuing permits.

22.3(1) *Stationary sources other than anaerobic lagoons.* In no case shall a construction permit or conditional permit which results in an increase in emissions be issued to any facility which is in violation of any condition found in a permit involving PSD, NSPS, NESHAP or a provision of the Iowa state implementation plan. If the facility is in compliance with a schedule for correcting the violation and that schedule is contained in an order or permit condition, the department may consider issuance of a construction permit or conditional permit. A construction or conditional permit shall be issued when the director concludes that the preceding requirement has been met and:

a. That the required plans and specifications represent equipment which reasonably can be expected to comply with all applicable emission standards, and

b. That the expected emissions from the proposed source or modification in conjunction with all other emissions will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28, and

c. That the applicant has not relied on emission limits based on stack height that exceeds good engineering practice or any other dispersion techniques as defined in 567—subrule 23.1(6), and

d. That the applicant has met all other applicable requirements.

22.3(2) *Anaerobic lagoons.* A construction permit for an industrial anaerobic lagoon shall be issued when the director concludes that the application for permit represents an approach to odor control that can reasonably be expected to comply with the criteria in 567—subrule 23.5(2). A construction permit for an animal feeding operation using an anaerobic lagoon shall be issued when the director concludes that the application has met the requirements of rule 567—65.15(455B).

22.3(3) *Conditions of approval.* A permit may be issued subject to conditions which shall be specified in writing. Such conditions may include but are not limited to emission limits, operating

conditions, fuel specifications, compliance testing, continuous monitoring, and excess emission reporting.

a. Each permit shall specify the date on which it becomes void if work on the installation for which it was issued has not been initiated.

b. Each permit shall list the requirements for notifying the department of the dates of intended startup, start of construction and actual equipment startup. All notifications shall be in writing and include the following information:

(1) The date or dates required by 22.3(3)*"b"* for which the notice is being submitted.
(2) Facility name.
(3) Facility address.
(4) DNR facility number.
(5) DNR air construction permit number.
(6) The name or the number of the emission unit or units in the notification.
(7) The emission point number or numbers in the notification.
(8) The name and signature of a company official.
(9) The date the notification was signed.

c. Each permit shall specify that no review has been undertaken on the various engineering aspects of the equipment other than the potential of the equipment for reducing air contaminant emissions.

d. A conditional permit shall require the submittal of final plans and specifications for the equipment or control equipment designed to meet the specified emission limits prior to installation of the equipment or control equipment.

e. If changes in the final plans and specifications are proposed by the permittee after a construction permit has been issued, a supplemental permit shall be obtained.

f. A permit is not transferable from one location to another or from one piece of equipment to another unless the equipment is portable. When portable equipment for which a permit has been issued is to be transferred from one location to another, the department shall be notified in writing at least 14 days prior to the transfer of the portable equipment to the new location. However, if the owner or operator is relocating the portable equipment to an area currently classified as nonattainment for ambient air quality standards or to an area under a maintenance plan for ambient air quality standards, the owner or operator shall notify the department at least 30 days prior to transferring the portable equipment to the new location. A list of nonattainment and maintenance areas may be obtained from the department, upon request, or on the department's Internet Web site. The owner or operator will be notified at least 10 days prior to the scheduled relocation if said relocation will prevent the attainment or maintenance of ambient air quality standards and thus require a more stringent emission standard and the installation of additional control equipment. In such a case a supplemental permit shall be obtained prior to the initiation of construction, installation, or alteration of such additional control equipment.

g. The issuance of a permit or conditional permit (approval to construct) shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the state implementation plan and any other requirement under local, state or federal law.

22.3(4) *Denial of a permit.*

a. When an application for a construction or conditional permit is denied, the applicant shall be notified in writing of the reasons therefor. A denial shall be without prejudice to the right of the applicant to file a further application after revisions are made to meet the objections specified as reasons for the denial.

b. The department may deny an application based upon the applicant's failure to provide a signed statement of the applicant's legal entitlement to install and operate equipment covered by the permit application on the property identified in the permit application.

22.3(5) *Modification of a permit.* The director may, after public notice of such decision, modify a condition of approval of an existing permit for a major stationary source or an emission limit contained in an existing permit for a major stationary source if necessary to attain or maintain an ambient air quality standard, or to mitigate excessive deposition of mercury.

22.3(6) *Limits on hazardous air pollutants.* The department may limit a source's hazardous air pollutant potential to emit, as defined at rule 567—22.100(455B), in the source's construction permit for the purpose of establishing federally enforceable limits on the source's hazardous air pollutant potential to emit.

22.3(7) *Revocation of a permit.* The department may revoke a permit upon obtaining knowledge that a permit holder has lost legal entitlement to use the property identified in the permit to install and operate equipment covered by the permit, upon notice that the property owner does not wish to have continued the operation of the permitted equipment, or upon notice that the owner of the permitted equipment no longer wishes to retain the permit for future operation.

22.3(8) *Ownership change of permitted equipment.* The new owner shall notify the department in writing no later than 30 days after the change in ownership of equipment covered by a construction permit pursuant to rule 567—22.1(455B). The notification to the department shall be mailed to the Air Quality Bureau, Iowa Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324, and shall include the following information:

a. The date of ownership change;

b. The name, address and telephone number of the responsible official, the contact person and the owner of the equipment both before and after ownership change; and

c. The construction permit number of the equipment changing ownership.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09]

567—22.4(455B) Special requirements for major stationary sources located in areas designated attainment or unclassified (PSD). As applicable, the owner or operator of a stationary source shall comply with the rules for prevention of significant deterioration (PSD) as set forth in 567—Chapter 33.

567—22.5(455B) Special requirements for nonattainment areas.

22.5(1) *Definitions.*

a. *"Major stationary source"* means any of the following:

(1) Any stationary source of air contaminants which emits, or has the potential to emit, 100 tons per year or more of any regulated air contaminant;

(2) Any physical change that would occur at a stationary source not qualifying under subparagraph (1) as a major stationary source, if the change would constitute a major stationary source by itself;

(3) For ozone nonattainment areas, sources with the potential to emit 100 tpy or more of volatile organic compounds or oxides of nitrogen in areas classified as "marginal" or "moderate," 50 tpy or more in areas classified as "serious," 25 tpy or more in areas classified as "severe" and 10 tpy or more in areas classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tpy of nitrogen oxides shall not apply with respect to any source for which the administrator has made a finding, under Section 182(f)(1) or (2) of the Clean Air Act, that requirements under Section 182(f) of the Clean Air Act do not apply;

(4) For ozone transport regions established pursuant to Section 184 of the Clean Air Act, sources with potential to emit 50 tpy or more of volatile organic compounds;

(5) For carbon monoxide nonattainment areas that both are classified as "serious" and in which there are stationary sources which contribute significantly to carbon monoxide levels, sources with the potential to emit 50 tpy or more of carbon monoxide; or

(6) For particulate matter (PM-10), nonattainment areas classified as "serious," sources with the potential to emit 70 tpy or more of PM-10.

A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

b. *"Major modification"* means any physical change in or change in the method of operation of a major stationary source, that would result in a significant net emission increase of any regulated air contaminant.

(1) Any net emissions increase that is considered significant for volatile organic compounds shall be considered significant for ozone.

(2) A physical change, or change in the method of operation, shall not include:

Routine maintenance, repair, and replacement;

Use of an alternative fuel or raw material by reason of an order under Sections 2(a) and (b) of the Energy Supply and Environmental Co-ordination Act of 1974 (or any superseding legislation), or by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act;

Use of an alternative fuel by reason of an order or rule under Section 125 of the Clean Air Act;

Any change in ownership at a stationary source; or

Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste.

Use of an alternative fuel or raw material by a stationary source which the source was capable of accommodating before December 21, 1976, unless such change would be prohibited by any enforceable permit condition.

An increase in the hours of operation or in the production rate, unless such change is prohibited under any enforceable permit condition.

c. "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

The provisions of this paragraph do not apply to a source or modification that would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

Coal cleaning plants (with thermal dryers);

Kraft pulp mills;

Portland cement plants;

Primary zinc smelters;

Iron and steel mills;

Primary aluminum ore reduction plants;

Primary copper smelters;

Municipal incinerators capable of charging more than 250 tons of refuse per day;

Hydrofluoric, sulfuric, or nitric acid plants;

Petroleum refineries;

Lime plants;

Phosphate rock processing plants;

Coke oven batteries;

Sulfur recovery plants;

Carbon black plants (furnace process);

Primary lead smelters;

Fuel conversion plants;

Sintering plants;

Secondary metal production plants;

Chemical process plants;

Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

Taconite ore processing plants;

Glass fiber processing plants;

Charcoal production plants;

Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Clean Air Act, 42 U.S.C. §§7401 et seq.

d. *"Lowest achievable emission rate"* means, for any source, that rate of emissions based on the following, whichever is more stringent:

(1) The most stringent emission limitation which is contained in the implementation plan of any state for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

(2) The most stringent emission limitation which is achieved in practice by such class or category of source.

This term, applied to a modification, means the lowest achievable emission rate for the new or modified emission units within the stationary source.

This term may include a design, equipment, material, work practice or operational standard or combination thereof.

In no event shall the application of this term permit a proposed new or modified stationary source to emit any regulated air contaminant in excess of the amount allowable under applicable new source standards of performance.

e. *"Secondary emissions"* means emissions which occur or could occur as a result of the construction or operation of a major stationary source or major modification, but do not necessarily come from the major stationary source or major modification itself. For purposes of this rule, secondary emissions must be specific and well-defined, must be quantifiable, and must affect the same general nonattainment area as the stationary source or modification which causes the secondary emission. Secondary emissions may include, but are not limited to:

Emissions from barges or trains coming to or from the new or modified stationary source; and

Emissions from any off-site support facility which would not otherwise be constructed or increase its emissions as a result of the construction or operation of the major stationary source or major modification.

f. (1) *"Net emissions increase"* means the amount by which the sum of the following exceeds zero:

Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(2) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commences and the date that the increase from the particular change occurs.

(3) An increase or decrease in actual emissions is creditable only if the director has not relied on it in issuing a permit for the source under this rule which permit is in effect when the increase in actual emissions from the particular change occurs.

(4) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(5) A decrease in actual emissions is creditable only to the extent that:

The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

It is an enforceable permit condition at and after the time that actual construction on the particular change begins;

The director has not relied on it in issuing any other permit;

Such emission decreases have not been used for showing reasonable further progress; and

It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(6) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any

replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

g. *"Emissions unit or installation"* means an identifiable piece of process equipment.

h. *"Reconstruction"* will be presumed to have taken place where the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost of a comparable entirely new stationary source. Any final decision as to whether reconstruction has occurred shall be made in accordance with the provisions of new source performance standards (see 567—subrule 23.1(2)). A reconstructed stationary source will be treated as a new stationary source for purposes of this rule. In determining lowest achievable emission rate for a reconstructed stationary source, the definitions in the new source performance standards shall be taken into account in assessing whether a new source performance standard is applicable to such stationary source.

i. *"Fixed capital cost"* means the capital needed to provide all the depreciable components.

j. *"Fugitive emissions"* means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

k. *"Significant"* means in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)

Nitrogen oxides: 40 tpy

Sulfur dioxide: 40 tpy

Particulate matter: 25 tpy

Ozone: 40 tpy of volatile organic compounds

Lead: 0.6 tpy

PM_{10}: 15 tpy

l. *"Allowable emissions"* means the emissions rate calculated using the maximum rated capacity of the source (unless the source is subject to an enforceable permit condition which restricts the operating rate, or hours of operation, or both) and the most stringent of the following:

(1) Applicable standards as set forth in 567—Chapter 23;

(2) Any applicable state implementation plan emissions limitation, including those with a future compliance date; or

(3) The emissions rate specified as an enforceable permit condition, including those with a future compliance date.

m. *"Enforceable permit condition"* for the purpose of this rule means any of the following limitations and conditions: requirements developed pursuant to new source performance standards, prevention of significant deterioration standards, emission standards for hazardous air pollutants, requirements within the state implementation plan, and any permit requirements established pursuant to this rule, or under conditional, construction or Title V operating permit rules.

n. (1) *"Actual emissions"* means the actual rate of emissions of a pollutant from an emissions unit as determined in accordance with subparagraphs (2) to (4) below.

(2) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period.

(3) The director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(4) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

o. *"Construction"* means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

p. *"Commence"* as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(1) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(2) Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

q. *"Necessary preconstruction approvals or permits"* means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the state implementation plan.

r. *"Begin actual construction"* means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework and construction of permanent storage structures. With respect to a change in method of operating, this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.

s. *"Building, structure, or facility"* means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0 respectively).

22.5(2) *Applicability.* Areas designated as attainment, nonattainment, or unclassified are as listed in 40 CFR §81.316 as amended through March 19, 1998.

a. The requirements contained in rule 567—22.5(455B) shall apply to any new major stationary source or major modification that, as of the date the permit is issued, is major for any pollutant for which the area in which the source would construct is designated as nonattainment.

b. The requirements contained in rule 567—22.5(455B) shall apply to each nonattainment pollutant that the source will emit or has the potential to emit in major amounts. In the case of a modification, the requirements shall apply to the significant net emissions increase of each nonattainment pollutant for which the source is major.

c. Particulate matter. If a major source or major modification is proposed to be constructed in an area designated nonattainment for particulate matter, then emission offsets must be achieved prior to startup.

If a major source or major modification is proposed to be constructed in an area designated attainment or unclassified for particulate matter, but the modeled (EPA-approved guideline model) worst case ground level particulate concentrations due to the major source or major modification in a designated particulate matter nonattainment area is equal to or greater than five micrograms per cubic meter (24-hour concentration), or one microgram per cubic meter (annual arithmetic mean), then emission offsets must be achieved prior to startup.

d. Sulfur dioxide. If a major source or major modification is proposed to be constructed in an area designated nonattainment for sulfur dioxide, then emission offsets must be achieved prior to startup.

If a major source or major modification is proposed to be constructed in an area designated attainment or unclassified for sulfur dioxide, but the modeled (EPA-approved guideline model) worst case ground level sulfur dioxide concentrations due to the major source or major modification in a designated sulfur dioxide nonattainment area is equal to or greater than 25 micrograms per cubic meter (three-hour concentration), five microgram per cubic meter (24-hour concentration), or one microgram per cubic meter (annual arithmetic mean), then emission offsets must be achieved prior to startup.

e. At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such

as a restriction on hours of operation, then the requirements of this rule shall apply to the source or modification as though construction had not yet commenced on the source or modification.

22.5(3) *Emission offsets.*

a. Emission offsets shall be obtained from the same source or other sources in the same nonattainment area, except that the required emissions reductions may be obtained from a source in another nonattainment area if:

(1) The other area, which must be nonattainment for the same pollutant, has an equal or higher nonattainment classification than the nonattainment area in which the source is located, and

(2) Emissions from such other nonattainment areas contribute to a violation of a National Ambient Air Quality Standard in the nonattainment area in which the proposed new or modified source would construct.

b. Emission offsets for any regulated air contaminant in the designated nonattainment area shall provide for reasonable further progress toward attainment of the applicable National Ambient Air Quality Standards and provide a positive net air quality benefit in the nonattainment area.

c. The increased emissions of any applicable nonattainment air pollutant allowed from the proposed new or modified source shall be offset by an equal or greater reduction, as applicable, in the total tonnage and impact of actual emissions, as stated in subrule 22.5(4), of such air pollutant from the same or other sources. For purposes of subrule 22.5(3), actual emissions shall be determined in accordance with subparagraphs 22.5(1)*"n"* (1) and (2).

d. All emissions reductions claimed as offset credit shall be federally enforceable prior to, or upon, the issuance of the permit required under this rule and shall be in effect by the time operation of the permitted new source or modification begins.

e. Proposals for emission offsets shall be submitted with the application for a permit for the major source or major modification. All approved emission offsets shall be made a part of the permit and shall be deemed a condition of expected performance of the major source or major modification.

22.5(4) *Acceptable emission offsets.*

a. Equivalence. The effect of the reduction of emissions must be measured or predicted to occur in the same area as the emissions of the major source or major modification. It can be assumed that, if the emission offsets are obtained from an existing source on the same premises or in the immediate vicinity of the major source or major modification and if the air contaminant disperses from substantially the same stack height, the emissions will be equivalent and may be offset. Otherwise, an adequate dispersion model must be used to predict the effect. If the reduction accomplished at the source is as specified in subrule 22.5(3) and if the effect of the reduction is measured or predicted to occur in the same area as the emissions of the major source or major modification, the effect of the reduction at the measured or predicted point does not have to exactly offset the effect of the major source or major modification.

b. Offset ratio. Rescinded IAB 2/14/96, effective 3/20/96.

c. Control of uncontrolled existing sources. If control equipment is proposed for a presently uncontrolled existing source for which controls are not required by rules, then credit may be allowed for any reduction below the source's potential to emit. The reduction shall be proposed at the time of permit application. Any such reductions which occurred prior to January 1, 1978, shall not be accepted for offsets.

d. Greater control of existing sources. If more effective control equipment for a source already in compliance with the SIP allowable level is proposed to offset the emissions of the major source or major modification in or affecting a nonattainment area, then the difference in the emissions between the actual level on January 1, 1978, and the new level can be credited for offsets. (This does not allow credit to be granted for any reductions in actual emissions required by the SIP subsequent to January 1, 1978.)

For example, if a cyclone that is being used to meet a SIP emission standard is emitting X_1 lbs/hr and if it is to be replaced by a bag filter emitting X_2 lbs/hr, an emission offset equal to $(X_1 - X_2)$ lbs/hr may be allowed toward the total required reduction.

e. Fugitive dust offsets. Credits may be allowed for permanent control of fugitive dust. EPA's "Technical Guidance for Control of Industrial Process Fugitive Particulate Emissions" (EPA-450/3-77-010, March 1977) shall be used as a guide to estimate reduction from fugitive dust

controls on traditional sources. Traditional source means a source category for which a particulate emission standard has been established in 567—subrule 23.1(2), 567—paragraph 23.3(2)*"a"* or *"b"* or 567—23.4(455B). The emission factors shall be modified to reflect realistic reductions. This would correspond to a consideration of particles in the less than 3 micron size range and the effectiveness of the fugitive dust control method.

f. Fuel switching credits. Credit may be allowed for fuel switching provided there is a demonstration by the applicant that supplies of the cleaner fuel will be available to the applicant for a minimum of five years. The demonstration must include, as a minimum, a written contract with the fuel supplier that the fuel will not be interrupted. The permit for the existing source shall be amended to provide for maintaining those offsets resulting from the fuel switching before offset credit will be granted.

g. Reduction credits. Credit for an emissions reduction can be claimed to the extent that the administrator and the department have not: (1) relied on it in issuing any permit under regulations approved pursuant to 40 CFR Parts 51 (amended through April 9, 1998), 55 (amended through August 4, 1997), 63 (amended through December 28, 1998), 70 (amended through November 26, 1997), or 71 (amended through October 22, 1997); (2) relied on it in demonstrating attainment or reasonable further progress; or (3) the reduction is not otherwise required under the Clean Air Act. Incidental emissions reductions which are not otherwise required under the Act shall be creditable as emissions reductions for such purposes if such emissions reductions meet the requirements of subrule 22.5(3).

h. Derating of equipment. If the emissions from a major source or major modification are proposed to be offset by reducing the operating capacity of another existing source, then credit may be allowed for this provided proper documentation (such as stack test results) showing the effect on emissions due to derating is submitted. The permit for the existing source must be amended to limit the operating capacity before offsets will be allowed.

i. Shutdown or curtailment.

(1) Emissions reductions achieved by shutting down an existing source or curtailing production or operating hours below baseline levels may be generally credited if such reductions are surplus, permanent, quantifiable, and federally enforceable, and if the area has an EPA-approved attainment plan. In addition, the shutdown or curtailment is creditable only if it occurred on or after the date specified for this purpose in the plan, and if such date is on or after the date of the most recent emissions inventory or attainment demonstration. However, in no event may credit be given for shutdowns which occurred prior to January 1, 1978. For purposes of this paragraph, the director may consider a prior shutdown or curtailment to have occurred after the date of its most recent emissions inventory, if the inventory explicitly includes as current existing emissions the emissions from such previously shutdown or curtailed sources. The work force shall be notified of the proposed curtailment or shutdown by the source owner or operator.

(2) The reductions described in subparagraph 22.5(4)*"i"*(1) may be credited in the absence of any approved attainment demonstration only if the shutdown or curtailment occurred on or after the date the new source permit application is filed, or, if the applicant can establish that the proposed new source is a replacement for the shutdown or curtailed source, and the cutoff date provisions in 22.5(4)*"i"*(1) are observed.

j. External emission offsets. If the emissions from the major source or major modification are proposed to be offset by reduction of emissions from a source not owned or operated by the owner or operator of the major source or major modification, then credit may be allowed for such reductions provided the external source's permit is amended to require the reduced emissions or a consent order is entered into by the department and the existing source. Consent orders for external offsets must be incorporated into the SIP and be approved by EPA before offset credit may be granted.

22.5(5) *Banking of offsets in nonattainment areas.* If the offsets in a given situation are more than required by 22.5(3) the amount of offsets that is greater than required may be banked for the exclusive use or control of the person achieving the reduction, subject to the limitations of this subrule. If the person achieving the reduction is not an individual, an authorized representative of the person must release control of the banked emissions in writing before another person, other than the commission, can utilize

the banked emissions. The banking of offsets creates no property right in those offsets. The commission may proportionally reduce or cancel banked offsets if it is determined that reduction or cancellation is necessary to demonstrate reasonable further progress or to attain the ambient air quality standards. Prior to reduction or cancellation, the commission shall notify the person who banked the offsets.

22.5(6) *Control technology review.*

a. Lowest achievable emission rate. A new or modified major source in a nonattainment area shall comply with the lowest achievable emission rate.

b. For phased construction projects, the determination of the lowest achievable emissions rate shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to the commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of the LAER for the source.

c. State implementation plan, new source performance standards, and emission standards for hazardous air pollutants. A major stationary source or major modification shall meet each applicable emissions limitation under the state implementation plan and each applicable emissions standard of performance under 40 CFR Parts 60 (amended through November 24, 1998), 61 (amended through October 14, 1997), and 63 (amended through December 28, 1998).

22.5(7) *Compliance of existing sources.* If a new major source or major modification is subject to rule 567—22.5(455B), then all major sources owned or operated by the applicant (or by any entity controlling, controlled by, or under common control by the applicant) in Iowa shall be either in compliance with applicable emission standards or under a compliance schedule approved by the commission.

22.5(8) *Alternate site analysis.* The permit application shall contain a submittal of an alternative site analysis. Such submittal shall include analysis of alternative sites, sizes, production processes and environmental control techniques for the proposed source. The analysis must demonstrate that benefits of the proposed source significantly outweigh the environmental and social costs that would result from its location, construction or modification. Such analysis shall be completed prior to permit issuance.

22.5(9) *Additional conditions for permit approval.*

a. For the air pollution control requirements applicable to subrule 22.5(6), the permit shall require the source to monitor, keep records, and provide reports necessary to determine compliance with and deviations from applicable requirements.

b. The state shall not issue the permit if the administrator has determined that the applicable implementation plan is not being adequately implemented for the nonattainment area in which the proposed stationary source or modification is to be constructed.

22.5(10) *Public availability of information.* No permit shall be issued until notice and opportunity for public comment are made available in accordance with the procedure described in 40 CFR 51.161 (as amended through November 7, 1986).

567—22.6(455B) Nonattainment area designations. Section 107(d) of the federal Clean Air Act, 42 U.S.C. §7457(d), requires each state to submit to the Administrator of the federal Environmental Protection Agency a list of areas that exceed the national ambient air quality standards, that are lower than those standards, or that cannot be classified on the basis of current data. A list of Iowa's nonattainment area designations is found at 40 CFR Part 81.316 as amended through January 5, 2005. The commission uses the document entitled "Criteria for Revising Nonattainment Area Designations"[1] (June 14, 1979) to determine when and to what extent the list will be revised and resubmitted.

[1] Filed with Administrative Rules Coordinator, also available from the department.

567—22.7(455B) Alternative emission control program.

22.7(1) *Applicability.* The owner or operator of any source located in an area with attainment or unclassified status (as published at 40 CFR §81.316 amended January 5, 2005) or located in an area with

an approved state implementation plan (SIP) demonstrating attainment by the statutory deadline may apply for an alternative set of emission limits if:

a. The applicant is presently in compliance with EPA approved SIP requirements, or

b. The applicant is subject to a consent order to meet an EPA approved compliance schedule and the final compliance date will not be delayed by the use of alternative emission limits.

22.7(2) *Demonstration requirements.* The applicant for the alternative emission control program shall have the burden of demonstrating that:

a. The alternative emission control program will not interfere with the attainment and maintenance of ambient air quality standards, including the reasonable further progress or prevention of significant deterioration requirements of the Clean Air Act;

b. The alternative emission limits are equivalent to existing emission limits in pollution reduction, enforceability, and environmental impact; (In the case of a particulate nonattainment area, the difference between the allowable emission rate and the actual emission rate, as of January 1, 1978, cannot be credited in the emissions tradeoff.)

c. The pollutants being exchanged are comparable and within the same pollutant category;

d. Hazardous air pollutants designated in 40 CFR Part 61, as amended through July 20, 2004, will not be exchanged for nonhazardous air pollutants;

e. The alternative program will not result in any delay in compliance by any source.

Specific situations may require additional demonstration as specified at 44 FR 71780-71788, December 11, 1979, or as requested by the director.

22.7(3) *Approval process.*

a. The director shall review all alternative emission control program proposals and shall make recommendations on all completed demonstrations to the commission.

b. After receiving recommendations from the director and public comments made available through the hearing process, the commission may approve or disapprove the alternative emission control program proposal.

c. If approved by the commission, the program will be forwarded to the EPA regional administrator as a revision to the State Implementation Plan. The alternative emission control program must receive the approval of the EPA regional administrator prior to becoming effective.

567—22.8(455B) Permit by rule.

22.8(1) *Permit by rule for spray booths.* Spray booths which comply with the requirements contained in this rule will be deemed to be in compliance with the requirements to obtain an air construction permit and an air operating permit. Spray booths which comply with this rule will be considered to have federally enforceable limits so that their potential emissions are less than the major source limits for regulated air pollutants and hazardous air pollutants as defined in 567—22.100(455B).

a. Definition. "Sprayed material" is material sprayed from spray equipment when used in the surface coating process in the spray booth, including but not limited to paint, solvents, and mixtures of paint and solvents.

b. Facilities which facilitywide spray one gallon per day or less of sprayed material are exempt from all other requirements in 567—Chapter 22, except that they must submit the certification in 22.8(1)*"e"* to the department and keep records of daily sprayed material use. The owner or operator must keep the records of daily sprayed material use for 18 months from the date to which the records apply. The owner or operator must also certify that the facility is in compliance with or otherwise exempt from the federal regulations specified in 22.8(1)*"e."*

c. Facilities which facilitywide spray more than one gallon per day but never more than three gallons per day are exempt from all other requirements in 567—Chapter 22, except that they must submit the certification in 22.8(1)*"e"* to the department, keep records of daily sprayed material use, and vent emissions from a spray booth(s) through a stack(s) which is at least 22 feet tall, measured from ground level. The owner or operator must keep the records of daily sprayed material use for 18 months from the date to which the records apply. The owner or operator must also certify that the facility is in compliance with or otherwise exempt from the federal regulations specified in 22.8(1)*"e."*

d. Facilities which facilitywide spray more than three gallons per day are not eligible to use the permit by rule for spray booths and must apply for a construction permit as required by subrules 22.1(1) and 22.1(3) unless otherwise exempt.

e. Notification letter.

(1) Facilities which claim to be permitted by provisions of this rule must submit to the department a written notification letter, on forms provided by the department, certifying that the facility meets the following conditions:

1. All paint booths and associated equipment are in compliance with the provisions of subrule 22.8(1);

2. All paint booths and associated equipment are in compliance with all applicable requirements including, but not limited to, the allowable particulate emission rate for painting and surface coating operations of 0.01 gr/scf of exhaust gas as specified in 567—subrule 23.4(13); and

3. All paint booths and associated equipment currently are or will be in compliance with or otherwise exempt from the national emissions standards for hazardous air pollutants (NESHAP) for paint stripping and miscellaneous surface coating at area sources (40 CFR Part 63, Subpart HHHHHH) and the NESHAP for metal fabricating and finishing at area sources (40 CFR Part 63, Subpart XXXXXX) by the applicable NESHAP compliance dates.

(2) The certification must be signed by one of the following individuals:

1. For corporations, a principal executive officer of at least the level of vice president, or a responsible official as defined at rule 567—22.100(455B).

2. For partnerships, a general partner.

3. For sole proprietorships, the proprietor.

4. For municipal, state, county, or other public facilities, the principal executive officer or the ranking elected official.

22.8(2) Reserved.

[**ARC 7565B**, IAB 2/11/09, effective 3/18/09; **ARC 8215B**, IAB 10/7/09, effective 11/11/09]

567—22.9(455B) Special requirements for visibility protection.

22.9(1) *Definitions.* Definitions included in this subrule apply to the provisions set forth in rule 567—22.9(455B).

"Best available retrofit technology (BART)" means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

"Deciview" means a haze index derived from calculated light extinction, such that uniform changes in haziness correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to highly impaired. The deciview haze index is calculated based on an equation found in 40 CFR 51.301, as amended on July 1, 1999.

"Mandatory Class I area" means any Class I area listed in 40 CFR Part 81, Subpart D, as amended through October 5, 1989.

22.9(2) *Best available retrofit technology (BART) applicability.* A source shall comply with the provisions of subrule 22.9(3) if the source falls within numbers 1 through 20 or 22 through 26 of the "stationary source categories" of air pollutants listed in rule 22.100(455B) or is a fossil-fuel fired boiler individually totaling more than 250 million Btu's per hour heat input and meets the following criteria:

a. Any emission unit for which startup began after August 7, 1962; and

b. Construction of the emission unit commenced on or before August 7, 1977; and

c. The sum of the potential to emit, as "potential to emit" is defined in 567—20.2(455B), from emission units identified above is equal to or greater than 250 tons per year or more of one of the following pollutants: nitrogen oxides, sulfur dioxide, particulate matter (PM_{10}), or volatile organic compounds.

22.9(3) *Duty to self-identify.* The owner or operator or designated representative of a facility meeting the conditions of subrule 22.9(2) shall submit two copies of a completed BART Eligibility Certification Form #542-8125, which shall include all information necessary for the department to complete eligibility determinations. The information submitted shall include source identification, description of processes, potential emissions, emission unit and emission point characteristics, date construction commenced and date of startup, and other information required by the department. The completed form was required to be submitted to the Air Quality Bureau, Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324, by September 1, 2005.

22.9(4) *Notification.* The department shall notify in writing the owner or operator or designated representative of a source of the department's determination that either:

a. A source meets the conditions listed in 22.9(2) (a source that meets these conditions is BART-eligible); or

b. For the purposes of the regional haze program, a source may cause or contribute to visibility impairment in any mandatory Class I area, as identified during either:

(1) Regional haze plan development required by 40 CFR 51.308(d) as amended on July 6, 2005; or

(2) A five-year periodic review on the progress toward the reasonable progress goals required by 40 CFR 51.308(g) as amended on July 6, 2005; or

(3) A ten-year comprehensive periodic revision of the implementation plan required by 40 CFR 51.308(f) as amended on July 6, 2005.

22.9(5) *Analysis.* The department may request in writing an analysis from the owner or operator or designated representative of a source that the department has determined may be causing or contributing to visibility impairment in a mandatory Class I area.

a. BART control analysis. For the purposes of BART, a source that is responsible for an impact of 1.0 deciview or more at a mandatory Class I area is considered to cause visibility impairment. A source that is responsible for an impact of 0.5 deciview or more at a mandatory Class I area is considered to contribute to visibility impairment. If a source meets either of these criteria, the owner or operator or designated representative shall prepare the BART analysis in accordance with Section IV of Appendix Y of 40 CFR Part 51 as amended through July 5, 2005, and shall submit the BART analysis 180 days after receipt of written notification by the department that a BART analysis is required.

b. Regional haze analysis. The owner or operator or designated representative of a source subject to 22.9(4)*"b"* shall prepare and submit an analysis after receipt of written notification by the department that an analysis is required.

22.9(6) *Control technology implementation.* Following the department's review of the analysis submitted pursuant to 22.9(5), an owner or operator of a source identified in 22.9(4) shall:

a. Submit all necessary permit applications to achieve the emissions requirements established following the completion of analysis performed in accordance with 22.9(5).

b. Install, operate, and maintain the control technology as required by permits issued by the department.

22.9(7) *BART exemption.* The owner or operator of a source subject to the BART emission control requirements may apply for an exemption from subrule 22.9(5) in accordance with 40 CFR 51.303 as amended on July 1, 1999.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09]

567—22.10(455B) Permitting requirements for country grain elevators, country grain terminal elevators, grain terminal elevators and feed mill equipment. The requirements of this rule apply only to country grain elevators, country grain terminal elevators, grain terminal elevators and feed mill equipment, as these terms are defined in subrule 22.10(1). The requirements of this rule do not apply to equipment located at grain processing plants or grain storage elevators, as "grain processing" and "grain storage elevator" are defined in rule 567—20.2(455B). Compliance with the requirements of this rule does not alleviate any affected person's duty to comply with any applicable state or federal regulations. In particular, the emission standards set forth in 567—Chapter 23, including the regulations

for grain elevators contained in 40 CFR Part 60, Subpart DD (as adopted by reference in 567—paragraph 23.1(2)*"ooo"*), may apply.

22.10(1) *Definitions.* For purposes of rule 567—22.10(455B), the following terms shall have the meanings indicated in this subrule.

"Country grain elevator" means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and which meets the following criteria:

1. Receives more than 50 percent of its grain, as "grain" is defined in this subrule, from farmers in the immediate vicinity during harvest season;
2. Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

"Country grain terminal elevator" means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and which meets the following criteria:

1. Receives 50 percent or less of its grain, as "grain" is defined in this subrule, from farmers in the immediate vicinity during harvest season;
2. Has a permanent storage capacity of less than or equal to 2.5 million U.S. bushels, as "permanent storage capacity" is defined in this subrule;
3. Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

"Feed mill equipment," for purposes of rule 567—22.10(455B), means grain processing equipment that is used to make animal feed including, but not limited to, grinders, crackers, hammermills, and pellet coolers, and that is located at a country grain elevator, country grain terminal elevator or grain terminal elevator.

"Grain," as set forth in Iowa Code section 203.1(9), means any grain for which the United States Department of Agriculture has established standards including, but not limited to, corn, wheat, oats, soybeans, rye, barley, grain sorghum, flaxseeds, sunflower seed, spelt (emmer), and field peas.

"Grain processing" shall have the same definition as "grain processing" set forth in rule 567—20.2(455B).

"Grain storage elevator" shall have the same definition as "grain storage elevator" set forth in rule 567—20.2(455B).

"Grain terminal elevator," for purposes of rule 567—22.10(455B), means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and which meets the following criteria:

1. Receives 50 percent or less of its grain, as "grain" is defined in this subrule, from farmers in the immediate vicinity during harvest season;
2. Has a permanent storage capacity of more than 88,100 m^3 (2.5 million U.S. bushels), as "permanent storage capacity" is defined in this subrule;
3. Is not located at an animal food manufacturer, pet food manufacturer, cereal manufacturer, brewery, or livestock feedlot;
4. Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

"Permanent storage capacity" means grain storage capacity which is inside a building, bin, or silo.

22.10(2) *Methods for determining potential to emit (PTE).* The owner or operator of a country grain elevator, country grain terminal elevator, grain terminal elevator or feed mill equipment shall use the following methods for calculating the potential to emit (PTE) for particulate matter (PM) and for particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}).

a. Country grain elevators. The owner or operator of a country grain elevator shall calculate the PTE for PM and PM_{10} as specified in the definition of "potential to emit" in rule 567—20.2(455B), except that "maximum capacity" means the greatest amount of grain received at the country grain elevator during one calendar, 12-month period of the previous five calendar, 12-month periods, multiplied by an adjustment factor of 1.2. The owner or operator may make additional adjustments to the calculations for air pollution control of PM and PM_{10} if the owner or operator submits the calculations to the department using the PTE calculation tool provided by the department, and only if the owner or

operator fully implements the applicable air pollution control measures no later than March 31, 2009, or upon startup of the equipment, whichever event first occurs. Credit for the application of some best management practices, as specified in subrule 22.10(3) or in a permit issued by the department, may also be used to make additional adjustments in the PTE for PM and PM_{10} if the owner or operator submits the calculations to the department using the PTE calculation tool provided by the department, and only if the owner or operator fully implements the applicable best management practices no later than March 31, 2009, or upon startup of the equipment, whichever event first occurs.

b. Country grain terminal elevators. The owner or operator of a country grain terminal elevator shall calculate the PTE for PM and PM_{10} as specified in the definition of "potential to emit" in rule 567—20.2(455B).

c. Grain terminal elevators. For purposes of the permitting and other requirements specified in subrule 22.10(3), the owner or operator of a grain terminal elevator shall calculate the PTE for PM and PM_{10} as specified in the definition of "potential to emit" in rule 567—20.2(455B). For purposes of determining whether the stationary source is subject to the prevention of significant deterioration (PSD) requirements set forth in 567—Chapter 33, or for determining whether the source is subject to the operating permit requirements set forth in rules 567—22.100(455B) through 567—22.300(455B), the owner or operator of a grain terminal elevator shall include fugitive emissions, as "fugitive emissions" is defined in 567—subrule 33.3(1) and in rule 567—22.100(455B), in the PTE calculation.

d. Feed mill equipment. The owner or operator of feed mill equipment, as "feed mill equipment" is defined in subrule 22.10(1), shall calculate the PTE for PM and PM10 for the feed mill equipment as specified in the definition of "potential to emit" in rule 567—20.2(455B). For purposes of determining whether the stationary source is subject to the prevention of significant deterioration (PSD) requirements set forth in 567—Chapter 33, or for determining whether the stationary source is subject to the operating permit requirements set forth in rules 567—22.100(455B) through 567—22.300(455B), the owner or operator of feed mill equipment shall sum the PTE of the feed mill equipment with the PTE of the country grain elevator, country grain terminal elevator or grain terminal elevator.

22.10(3) *Classification and requirements for permits, emissions controls, record keeping and reporting for Group 1, Group 2, Group 3 and Group 4 grain elevators.* The requirements for construction permits, operating permits, emissions controls, record keeping and reporting for a stationary source that is a country grain elevator, country grain terminal elevator or grain terminal elevator are set forth in this subrule.

a. Group 1 facilities. A country grain elevator, country grain terminal elevator or grain terminal elevator may qualify as a Group 1 facility if the PTE at the stationary source is less than 15 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 1 facility is one that commenced construction or reconstruction before February 6, 2008. A "new" Group 1 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Group 1 registration. The owner or operator of a Group 1 facility shall submit to the department a Group 1 registration, including PTE calculations, on forms provided by the department, certifying that the facility's PTE is less than 15 tons of PM_{10} per year. The owner or operator of an existing facility shall provide the Group 1 registration to the department on or before March 31, 2008. The owner or operator of a new facility shall provide the Group 1 registration to the department prior to initiating construction or reconstruction of a facility. The registration becomes effective upon the department's receipt of the signed registration form and the PTE calculations.

1. If the owner or operator registers with the department as specified in subparagraph 22.10(3)*"a"*(1), the owner or operator is exempt from the requirement to obtain a construction permit as specified under subrule 22.1(1).

2. Upon department receipt of a Group 1 registration and PTE calculations, the owner or operator is allowed to add, remove and modify the emissions units or change throughput or operations at the facility without modifying the Group 1 registration, provided that the owner or operator calculates the PTE for PM_{10} on forms provided by the department prior to making any additions to, removals of or modifications to equipment, and only if the facility continues to meet the emissions limits and operating

limits (including restrictions on material throughput and hours of operation, if applicable, as specified in the PTE for PM_{10} calculations) specified in the Group 1 registration.

3. If equipment at a Group 1 facility currently has an air construction permit issued by the department, that permit shall remain in full force and effect, and the permit shall not be invalidated by the subsequent submittal of a registration made pursuant to subparagraph 22.10(3)*"a"*(1).

(2) Best management practices (BMP). The owner or operator of a Group 1 facility shall implement best management practices (BMP) for controlling air pollution at the facility and for limiting fugitive dust at the facility from crossing the property line. The owner or operator shall implement BMP according to the department manual, Best Management Practices (BMP) for Grain Elevators (December 2007), as adopted by the commission on January 15, 2008, and adopted by reference herein (available from the department, upon request, and on the department's Internet Web site. No later than March 31, 2009, the owner or operator of an existing Group 1 facility shall fully implement applicable BMP. Upon startup of equipment at the facility, the owner or operator of a new Group 1 facility shall fully implement applicable BMP.

(3) Record keeping. The owner or operator of a Group 1 facility shall retain a record of the previous five calendar years of total annual grain handled and shall calculate the facility's potential PM_{10} emissions annually by January 31 for the previous calendar year. These records shall be kept on site for a period of five years and shall be made available to the department upon request.

(4) Emissions increases. The owner or operator of a Group 1 facility shall calculate any emissions increases prior to making any additions to, removals of or modifications to equipment. If the owner or operator determines that PM_{10} emissions at a Group 1 facility will increase to 15 tons per year or more, the owner or operator shall comply with the requirements set forth for Group 2, Group 3 or Group 4 facilities, as applicable, prior to making any additions to, removals of or modifications to equipment.

(5) Changes to facility classification or permanent grain storage capacity. If the owner or operator of a Group 1 facility plans to change the facility's operations or increase the facility's permanent grain storage capacity to more than 2.5 million U.S. bushels, the owner or operator, prior to making any changes, shall reevaluate the facility's classification and the allowed method for calculating PTE to determine if any increases to the PTE for PM_{10} will occur. If the proposed change will alter the facility's classification or will increase the facility's PTE for PM_{10} such that the facility PTE increases to 15 tons per year or more, the owner or operator shall comply with the requirements set forth for Group 2, Group 3 or Group 4 facilities, as applicable, prior to making the change.

b. Group 2 facilities. A country grain elevator, country grain terminal elevator or grain terminal elevator may qualify as a Group 2 facility if the PTE at the stationary source is greater than or equal to 15 tons of PM_{10} per year and is less than or equal to 50 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 2 facility is one that commenced construction, modification or reconstruction before February 6, 2008. A "new" Group 2 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Group 2 permit for grain elevators. The owner or operator of a Group 2 facility may, in lieu of obtaining air construction permits for each piece of emissions equipment at the facility, submit to the department a completed Group 2 permit application for grain elevators, including PTE calculations, on forms provided by the department. Alternatively, the owner or operator may obtain an air construction permit as specified under subrule 22.1(1). The owner or operator of an existing facility shall provide the appropriate completed Group 2 permit application for grain elevators or the appropriate construction permit applications to the department on or before March 31, 2008. The owner or operator of a new facility shall provide the appropriate, completed Group 2 permit application for grain elevators or the appropriate construction permit applications to the department prior to initiating construction or reconstruction of a facility.

1. Upon department issuance of a Group 2 permit to a facility, the owner or operator is allowed to add, remove and modify the emissions units at the facility, or change throughput or operations, without modifying the Group 2 permit, provided that the owner or operator calculates the PTE for PM_{10} prior to making any additions to, removals of or modifications to equipment, and only if the facility continues to

meet the emissions limits and operating limits (including restrictions on material throughput and hours of operation, if applicable, as specified in the PTE for PM_{10} calculations) specified in the Group 2 permit.

2. If a Group 2 facility currently has an air construction permit issued by the department, that permit shall remain in full force and effect, and the permit shall not be invalidated by the subsequent submittal of a Group 2 permit application for grain elevators made pursuant to this rule. However, the owner or operator of a Group 2 facility may request that the department incorporate any equipment with a previously issued construction permit into the Group 2 permit for grain elevators. The department will grant such requests on a case-by-case basis. If the department grants the request to incorporate previously permitted equipment into the Group 2 permit for grain elevators, the owner or operator of the Group 2 facility is responsible for requesting that the department rescind any previously issued construction permits.

(2) Best management practices (BMP). The owner or operator shall implement BMP, as specified in the Group 2 permit, for controlling air pollution at the source and for limiting fugitive dust at the source from crossing the property line. If the department revises the BMP requirements for Group 2 facilities after a facility is issued a Group 2 permit, the owner or operator of the Group 2 facility may request that the department modify the facility's Group 2 permit to incorporate the revised BMP requirements. The department will issue permit modifications to incorporate BMP revisions on a case-by-case basis. No later than March 31, 2009, the owner or operator of an existing Group 2 facility shall fully implement BMP, as specified in the Group 2 permit. Upon startup of equipment at the facility, the owner or operator of a new Group 2 facility shall fully implement BMP, as specified in the Group 2 permit.

(3) Record keeping. The owner or operator of a Group 2 facility shall retain all records as specified in the Group 2 permit.

(4) Emissions inventory. The owner or operator of a Group 2 facility shall submit an emissions inventory for the facility for all regulated air pollutants as specified under 567—subrule 21.1(3).

(5) Emissions increases. The owner or operator of a Group 2 facility shall calculate any emissions increases prior to making any additions to, removals of or modifications to equipment. If the owner or operator determines that potential PM_{10} emissions at a Group 2 facility will increase to more than 50 tons per year, the owner or operator shall comply with the requirements set forth for Group 3 or Group 4 facilities, as applicable, prior to making any additions to, removals of or modifications to equipment.

(6) Changes to facility classification or permanent grain storage capacity. If the owner or operator of a Group 2 facility plans to change the facility's operations or increase the facility's permanent grain storage capacity to more than 2.5 million U.S. bushels, the owner or operator, prior to making any changes, shall reevaluate the facility's classification and the allowed method for calculating PTE to determine if any increases to the PTE for PM_{10} will occur. If the proposed change will increase the facility's PTE for PM_{10} such that the facility PTE increases to more than 50 tons per year, the owner or operator shall comply with the requirements set forth for Group 3 or Group 4 facilities, as applicable, prior to making the change.

c. Group 3 facilities. A country grain elevator, country grain terminal elevator or grain terminal elevator may qualify as a Group 3 facility if the PTE for PM_{10} at the stationary source is greater than 50 tons per year, but is less than 100 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 3 facility is one that commenced construction, modification or reconstruction before February 6, 2008. A "new" Group 3 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Air construction permit. The owner or operator of a Group 3 facility shall obtain the required construction permits as specified under subrule 22.1(1). The owner or operator of an existing facility shall provide the construction permit applications, as specified in subrule 22.1(3), to the department on or before March 31, 2008. The owner or operator of a new facility shall obtain the required permits, as specified in subrule 22.1(1), from the department prior to initiating construction or reconstruction of a facility.

(2) Permit conditions. Construction permit conditions for a Group 3 facility shall include, but are not limited to, the following:

1. The owner or operator shall implement BMP, as specified in the permit, for controlling air pollution at the source and for limiting fugitive dust at the source from crossing the property line. If the department revises the BMP requirements for Group 3 facilities after a facility is issued a permit, the owner or operator of the Group 3 facility may request that the department modify the facility's permit to incorporate the revised BMP requirements. The department will issue permit modifications to incorporate BMP revisions on a case-by-case basis.

2. The owner or operator shall retain all records as specified in the permit.

(3) Emissions inventory. The owner or operator shall submit an emissions inventory for the facility for all regulated air pollutants as specified under 567—subrule 21.1(3).

(4) Changes to facility classification or permanent grain storage capacity. If the owner or operator of a Group 3 facility plans to change its operations or increase the facility's permanent grain storage capacity to more than 2.5 million U.S. bushels, the owner or operator, prior to making any changes, shall reevaluate the facility's classification and the allowed method for calculating PTE to determine if any increases to the PTE for PM_{10} will occur. If the proposed change will alter the facility's classification or will increase the facility's PTE for PM_{10} such that the facility PTE increases to greater than or equal to 100 tons per year, the owner or operator shall comply with the requirements set forth for Group 4 facilities, as applicable, prior to making the change.

(5) PSD applicability. If the PTE for PM or PM_{10} at the Group 3 facility is greater than or equal to 250 tons per year, the owner or operator shall comply with requirements specified in 567—Chapter 33, as applicable. The owner or operator of a Group 3 facility that is a grain terminal elevator shall include fugitive emissions, as "fugitive emissions" is defined in 567—subrule 33.3(1), in the PTE calculation for determining PSD applicability.

(6) Record keeping. The owner or operator shall keep the records of annual grain handled at the facility and annual PTE for PM and PM_{10} emissions on site for a period of five years, and the records shall be made available to the department upon request.

d. Group 4 facilities. A facility qualifies as a Group 4 facility if the facility is a stationary source with a PTE equal to or greater than 100 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 4 facility is one that commenced construction, modification or reconstruction before February 6, 2008. A "new" Group 4 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Air construction permit. The owner or operator of a Group 4 facility shall obtain the required construction permits as specified under subrule 22.1(1). The owner or operator of an existing facility shall provide the construction permit applications, as specified by subrule 22.1(3), to the department on or before March 31, 2008. The owner or operator of a new facility shall obtain the required permits, as specified by subrule 22.1(1), from the department prior to initiating construction or reconstruction of a facility.

(2) Permit conditions. Construction permit conditions for a Group 4 facility shall include, but are not limited to, the following:

1. The owner or operator shall implement BMP, as specified in the permit, for controlling air pollution at the facility and for limiting fugitive dust at the facility from crossing the property line. If the department revises the BMP requirements for Group 4 facilities after a facility is issued a permit, the owner or operator of the Group 4 facility may request that the department modify the facility's permit to incorporate the revised BMP requirements. The department will issue permit modifications to incorporate BMP revisions on a case-by-case basis.

2. The owner or operator shall retain all records as specified in the permit.

(3) PSD applicability. If the PTE for PM or PM_{10} at the facility is equal to or greater than 250 tons per year, the owner or operator shall comply with requirements specified in 567—Chapter 33, as applicable. The owner or operator of a Group 4 facility that is a grain terminal elevator shall include fugitive emissions, as "fugitive emissions" is defined in 567—subrule 33.3(1), in the PTE calculation for determining PSD applicability.

(4) Record keeping. The owner or operator shall keep the records of annual grain handled at the facility and annual PTE for PM and PM_{10} emissions on site for a period of five years, and the records shall be made available to the department upon request.

(5) Operating permits. The owner or operator of a Group 4 facility shall apply for an operating permit for the facility if the facility's annual PTE for PM_{10} is equal to or greater than 100 tons per year as specified in rules 567—22.100(455B) through 567—22.300(455B). The owner or operator of a Group 4 facility that is a grain terminal elevator shall include fugitive emissions in the calculations to determine if the PTE for PM_{10} is greater than or equal to 100 tons per year. The owner or operator also shall submit annual emissions inventories and fees, as specified in rule 567—22.106(455B).

22.10(4) *Feed mill equipment.* This subrule sets forth the requirements for construction permits, operating permits, and emissions inventories for an owner or operator of feed mill equipment as "feed mill equipment" is defined in subrule 22.10(1). For purposes of this subrule, the owner or operator of "existing" feed mill equipment shall have commenced construction or reconstruction of the feed mill equipment before February 6, 2008. The owner or operator of "new" feed mill equipment shall have commenced construction or reconstruction of the feed mill equipment on or after February 6, 2008.

a. Air construction permit. The owner or operator of feed mill equipment shall obtain an air construction permit as specified under subrule 22.1(1) for each piece of feed mill equipment that emits a regulated air pollutant. The owner or operator of "existing" feed mill equipment shall provide the appropriate permit applications to the department on or before March 31, 2008. The owner or operator of "new" feed mill equipment shall provide the appropriate permit applications to the department prior to initiating construction or reconstruction of feed mill equipment.

b. Emissions inventory. The owner or operator shall submit an emissions inventory for the feed mill equipment for all regulated air pollutants as specified under 567—subrule 21.1(3).

c. Operating permits. The owner or operator shall sum the PTE of the feed mill equipment with the PTE of the equipment at the country grain elevator, country grain terminal elevator or grain terminal elevator, as PTE is specified in subrule 22.10(2), to determine if operating permit requirements specified in rules 567—22.100(455B) through 567—22.300(455B) apply to the stationary source. If the operating permit requirements apply, then the owner or operator shall apply for an operating permit as specified in rules 567—22.100(455B) through 567—22.300(455B). The owner or operator also shall begin submitting annual emissions inventories and fees, as specified under rule 567—22.106(455B).

d. PSD applicability. For purposes of determining whether the stationary source is subject to the prevention of significant deterioration (PSD) requirements set forth in 567—Chapter 33, the owner or operator shall sum the PTE of the feed mill equipment with the PTE of the equipment at the country grain elevator, country grain terminal elevator or grain terminal elevator. If the PTE for PM or PM_{10} for the stationary source is equal to or greater than 250 tons per year, the owner or operator shall comply with requirements for PSD specified in 567—Chapter 33, as applicable.

567—22.11 to **22.99** Reserved.

567—22.100(455B) Definitions for Title V operating permits. For purposes of rules 567—22.100(455B) to 567—22.116(455B), the following terms shall have the meaning indicated in this rule:

"Act" means the Clean Air Act, 42 U.S.C. Sections 7401, et seq.

"Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with the following:

1. In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which immediately precedes that date and which is representative of normal source operations. The director may allow the use of a different time period upon a demonstration that it is more representative of normal source operations. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period. Actual emissions for acid rain affected sources are calculated using a one-year period.

2. Lacking specific information to the contrary, the director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

3. For any emissions unit which has not begun normal operations on a particular date, actual emissions shall equal the potential to emit of the unit on that date.

4. For purposes of calculating early reductions of hazardous air pollutants, actual emissions shall not include excess emissions resulting from a malfunction or from startups and shutdowns associated with a malfunction.

Actual emissions for purposes of determining fees shall be the actual emissions calculated over a period of one year.

"Administrator" means the administrator for the United States Environmental Protection Agency (EPA) or designee.

"Affected facility" means, with reference to a stationary source, any apparatus which emits or may emit any regulated air pollutant or contaminant.

"Affected source" means a source that includes one or more affected units subject to any emissions reduction requirement or limitation under Title IV of the Act.

"Affected state" means any state which is contiguous to the permitting state and whose air quality may be affected through the modification, renewal or issuance of a Title V permit; or which is within 50 miles of the permitted source.

"Affected unit" means a unit that is subject to any acid rain emissions reduction requirement or acid rain emissions limitation under Title IV of the Act.

"Allowable emissions" means the emission rate of a stationary source calculated using both the maximum rated capacity of the source, unless the source is subject to federally enforceable limits which restrict the operating rate or hours of operation, and the most stringent of the following:

1. The applicable new source performance standards or national emissions standards for hazardous air pollutants, contained in 567—subrules 23.1(2) and 23.1(3);

2. The applicable existing source emission standard contained in 567—Chapter 23; or

3. The emissions rate specified in the air construction permit for the source.

"Allowance" means an authorization by the administrator under Title IV of the Act or rules promulgated thereunder to emit during or after a specified calendar year up to one ton of sulfur dioxide.

"Applicable requirement" includes the following:

1. Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rule making under Title I of the Act that implements the relevant requirements of the Act, including any revisions to that plan promulgated in 40 CFR 52;

2. Any term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rule making under Title I, including Parts C and D, of the Act;

3. Any standard or other requirement under Section 111 of the Act (subrule 23.1(2)), including Section 111(d);

4. Any standard or other requirement under Section 112 of the Act, including any requirement concerning accident prevention under Section 112(r)(7) of the Act;

5. Any standard or other requirement of the acid rain program under Title IV of the Act or the regulations promulgated thereunder;

6. Any requirements established pursuant to Section 504(b) or Section 114(a)(3) of the Act;

7. Any standard or other requirement governing solid waste incineration, under Section 129 of the Act;

8. Any standard or other requirement for consumer and commercial products, under Section 183(e) of the Act;

9. Any standard or other requirement for tank vessels under Section 183(f) of the Act;

10. Any standard or other requirement of the program to control air pollution from outer continental shelf sources, under Section 328 of the Act;

11. Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the Act, unless the administrator has determined that such requirements need not be contained in a Title V permit; and

12. Any national ambient air quality standard or increment or visibility requirement under Part C of Title I of the Act, but only as it would apply to temporary sources permitted pursuant to Section 504(e) of the Act.

"Area source" means any stationary source of hazardous air pollutants that is not a major source as defined in rule 567—22.100(455B).

"CFR" means the Code of Federal Regulations, with standard references in this chapter by Title and Part, so that "40 CFR 51" means "Title 40 of the Code of Federal Regulations, Part 51."

"Consumer Price Index" means for any calendar year the average of the Consumer Price Index for all urban consumers published by the United States Department of Labor, as of the close of the 12-month period ending on August 31 of each calendar year.

"Country grain elevator" shall have the same definition as "country grain elevator" set forth in subrule 22.10(1).

"Designated representative" means a responsible natural person authorized by the owner(s) or operator(s) of an affected source and of all affected units at the source, as evidenced by a certificate of representation submitted in accordance with Subpart B of 40 CFR Part 72 as amended to October 24, 1997, to represent and legally bind each owner and operator, as a matter of federal law, in matters pertaining to the acid rain program. Whenever the term "responsible official" is used in rules 567—22.100(455B) to 567—22.208(455B), it shall be deemed to refer to the designated representative with regard to all matters under the acid rain program.

"Draft Title V permit" means the version of a Title V permit for which the department offers public participation or affected state review.

"Emergency generator" means any generator of which the sole function is to provide emergency backup power during an interruption of electrical power from the electric utility. An emergency generator does not include:

1. Peaking units at electric utilities;
2. Generators at industrial facilities that typically operate at low rates, but are not confined to emergency purposes; or
3. Any standby generators that are used during time periods when power is available from the electric utility.

An emergency is an unforeseeable condition that is beyond the control of the owner or operator.

"Emissions allowable under the permit" means a federally enforceable permit term or condition determined at issuance to be required by an applicable requirement that establishes an emissions limit (including a work practice standard) or a federally enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.

"Emissions unit" means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under Section 112(b) of the Act. This term is not meant to alter or affect the definition of the term "unit" for purposes of Title IV of the Act or any related regulations.

"EPA conditional method" means any method of sampling and analyzing for air pollutants that has been validated by the administrator but that has not been published as an EPA reference method.

"EPA reference method" means any method of sampling and analyzing for an air pollutant as described in 40 CFR 51, Appendix M (as amended through June 16, 1997); 40 CFR 52, Appendices D (as amended through February 6, 1975) and E (as amended through February 6, 1975); 40 CFR 60, Appendices A (as amended through September 28, 2007), B (as amended through September 28, 2007), C (as amended through December 16, 1975), and F (as amended through January 12, 2004); 40 CFR 61, Appendix B (as amended through October 17, 2000); 40 CFR 63, Appendix A (as amended through October 17, 2000); and 40 CFR 75, Appendices A (as amended through January 24, 2008), B (as amended through January 24, 2008), F (as amended through January 24, 2008, and corrected on February 13, 2008) and K (as amended through January 24, 2008).

"Equipment leaks" means leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, agitators, accumulator vessels, and instrumentation systems.

"Existing hazardous air pollutant source" means any source as defined in 40 CFR 61 (as amended through July 20, 2004) and 40 CFR 63.72 (as amended through December 29, 1992) with respect to Section 112(i)(5) of the Act, the construction or reconstruction of which commenced prior to proposal of an applicable Section 112(d) standard.

"Facility" means, with reference to a stationary source, any apparatus which emits or may emit any air pollutant or contaminant.

"Federal implementation plan" means a plan promulgated by the administrator to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy in a state implementation plan, and which includes enforceable emission limitations or other control measures, means or techniques, and provides for attainment of the relevant national ambient air quality standard.

"Federally enforceable" means all limitations and conditions which are enforceable by the administrator including, but not limited to, the requirements of the new source performance standards and national emission standards for hazardous air pollutants contained in 567—subrules 23.1(2) and 23.1(3); the requirements of such other state rules or orders approved by the administrator for inclusion in the SIP; and any construction, Title V or other federally approved operating permit conditions.

"Final Title V permit" means the version of a Title V permit issued by the department that has completed all required review procedures.

"Fugitive emissions" are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening.

"Hazardous air pollutant" means any of the following air pollutants listed in Section 112 of the Act:

cas #	chemical name
75343	1,1-Dichloroethane
57147	1,1-Dimethyl hydrazine
71556	1,1,1-Trichloroethane
79005	1,1,2-Trichloroethane
79345	1,1,2,2-Tetrachloroethane
106887	1,2-Butylene oxide
96128	1,2-Dibromo-3-chloropropane
106934	1,2-Dibromoethane
107062	1,2-Dichloroethane
78875	1,2-Dichloropropane
122667	1,2-Diphenylhydrazine
120821	1,2,4-Trichlorobenzene
106990	1,3-Butadiene
542756	1,3-Dichloropropylene
106467	1,4-Dichlorobenzene
123911	1,4-Dioxane
53963	2-Acetylaminofluorene
532274	2-Chloroacetophenone
79469	2-Nitropropane
540841	2,2,4-Trimethylpentane
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TC-DD)
94757	2,4-D salts and esters
95807	2,4-Diaminotoluene
51285	2,4-Dinitrophenol

cas #	chemical name
121142	2,4-Dinitrotoluene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
91941	3,3’-Dichlorobenzidine
119904	3,3’-Dimethoxybenzidine
119937	3,3’-Dimethylbenzidine
92671	4-Aminobiphenyl
60117	4-Dimethylaminoazobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
101144	4,4’-Methylenebis(2-chloroaniline)
101779	4,4’-methylenedianiline
534521	4,6-Dinitro-o-cresol, and salts
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
62533	Aniline
0	Antimony Compounds
0	Arsenic Compounds (inorganic including arsine)
1332214	Asbestos (friable)
71432	Benzene
92875	Benzidine
98077	Benzoic trichloride
100447	Benzyl chloride
0	Beryllium Compounds
57578	Beta-Propiolactone
92524	Biphenyl
111444	Bis(2-chloroethyl) ether
542881	Bis(chloromethyl) ether
75252	Bromoform
74839	Bromomethane
0	Cadmium Compounds
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl

cas #	chemical name
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
108907	Chlorobenzene
510156	Chlorobenzilate
75003	Chloroethane
67663	Chloroform
74873	Chloromethane
107302	Chloromethyl methyl ether
126998	Chloroprene
0	Chromium Compounds
0	Cobalt Compounds
0	Coke Oven Emissions
1319773	Cresol/Cresylic acid (isomers & mixture)
98828	Cumene
0	Cyanide Compounds[1]
72559	DDE
117817	Di(2-ethylhexyl) phthalate
334883	Diazomethane
132649	Dibenzofuran
84742	Dibutyl phthalate
75092	Dichloromethane
62737	Dichlorvos
111422	Diethanolamine
64675	Diethyl sulfate
68122	Dimethyl formamide
131113	Dimethyl phthalate
77781	Dimethyl sulfate
79447	Dimethylcarbamyl chloride
106898	Epichlorohydrin
140885	Ethyl acrylate
100414	Ethylbenzene
107211	Ethylene glycol
75218	Ethylene oxide
96457	Ethylene thiourea
151564	Ethyleneimine

cas #	chemical name
0	Fine Mineral Fibers[3]
50000	Formaldehyde
0	Glycol Ethers[2], except cas #111-76-2, ethylene glycol mono-butyl ether, also known as EGBE or 2-Butoxyethanol
76448	Heptachlor
87683	Hexachloro-1,3-butadiene
118741	Hexachlorobenzene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride
123319	Hydroquinone
78591	Isophorone
0	Lead Compounds
58899	Lindane (all isomers)
108394	m-Cresol
108383	m-Xylene
108316	Maleic anhydride
0	Manganese Compounds
0	Mercury Compounds
67561	Methanol
72435	Methoxychlor
60344	Methyl hydrazine
74884	Methyl iodide
108101	Methyl isobutyl ketone
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tertbutyl ether
101688	Methylene bis(phenylisocyanate)
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
91203	Naphthalene
0	Nickel Compounds
98953	Nitrobenzene
121697	N,N-Dimethylaniline
90040	o-Anisidine

cas #	chemical name
95487	o-Cresol
95534	o-Toluidine
95476	o-Xylene
106445	p-Cresol
106503	p-Phenylenediamine
106423	p-Xylene
56382	Parathion
87865	Pentachlorophenol
108952	Phenol
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus (yellow or white)
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls
0	Polycyclic Organic Matter[4]
1120714	Propane sultone
123386	Propionaldehyde
114261	Propoxur
75569	Propylene oxide
75558	Propyleneimine
91225	Quinoline
106514	Quinone
82688	Quintozene
0	Radionuclides (including Radon)[5]
0	Selenium Compounds
100425	Styrene
96093	Styrene oxide
127184	Tetrachloroethylene
7550450	Titanium tetrachloride
108883	Toluene
584849	Toluene-2,4-diisocyanate
8001352	Toxaphene
79016	Trichloroethylene
121448	Triethylamine
1582098	Trifluralin
51796	Urethane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride
1330207	Xylene (mixed isomers)

NOTE: For all listings above which contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

[1]X'CN where X=H' or any other group where a formal dissociation may occur. For example KCN or $Ca(CN)_2$

[2]Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol $R(OCH2CH2)_n$-OR' where n=1,2, or 3; R=alkyl or aryl groups; R'=R,H, or groups which, when removed, yield glycol ethers with the structure $R(OCH2CH)_n$-OH. Polymers are excluded from the glycol category.

[3]Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

[4]Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 degrees C.

[5]A type of atom which spontaneously undergoes radioactive decay.

"High-risk pollutant" means one of the following hazardous air pollutants listed in Table 1 in 40 CFR 63.74 as amended through October 21, 1994.

cas #	chemical name	weighting factor
53963	2-Acetylaminofluorene	100
107028	Acrolein	100
79061	Acrylamide	10
107131	Acrylonitrile	10
0	Arsenic compounds	100
1332214	Asbestos	100
71432	Benzene	10
92875	Benzidine	1000
0	Beryllium compounds	10
542881	Bis(chloromethyl) ether	1000
106990	1,3-Butadiene	10
0	Cadmium compounds	10
57749	Chlordane	100
532274	2-Chloroacetophenone	100
0	Chromium compounds	100
107302	Chloromethyl methyl ether	10
0	Coke oven emissions	10
334883	Diazomethane	10
132649	Dibenzofuran	10
96128	1,2-Dibromo-3-chloropropane	10
111444	Dichloroethyl ether(Bis(2-chloroethyl)ether)	10
79447	Dimethylcarbamoyl chloride	100
122667	1,2-Diphenylhydrazine	10
106934	Ethylene dibromide	10
151564	Ethylenimine (Aziridine)	100
75218	Ethylene oxide	10
76448	Heptachlor	100
118741	Hexachlorobenzene	100

cas #	chemical name	weighting factor
77474	Hexachlorocyclopentadiene	100
302012	Hydrazine	100
0	Manganese compounds	10
0	Mercury compounds	100
60344	Methyl hydrazine	10
624839	Methyl isocyanate	10
0	Nickel compounds	10
62759	N-Nitrosodimethylamine	100
684935	N-Nitroso-N-methylurea	1000
56382	Parathion	10
75445	Phosgene	10
7803512	Phosphine	10
7723140	Phosphorus	10
75558	1,2-Propylenimine	100
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	100,000
8001352	Toxaphene (chlorinated camphene)	100
75014	Vinyl chloride	10

"Major source" means any stationary source (or any group of stationary sources located on one or more contiguous or adjacent properties and under common control of the same person or of persons under common control) belonging to a single major industrial grouping that is any of the following:

1. A major stationary source of air pollutants, as defined in Section 302 of the Act, that directly emits or has the potential to emit 100 tons per year (tpy) or more of any air pollutant subject to regulation (including any major source of fugitive emissions of any such pollutant). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of Section 302(j) of the Act, unless the source belongs to one of the stationary source categories listed in this chapter.

2. A major source of hazardous air pollutants according to Section 112 of the Act as follows:

For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tpy or more of any hazardous air pollutant which has been listed pursuant to Section 112(b) of the Act and these rules or 25 tpy or more of any combination of such hazardous air pollutants. Notwithstanding the previous sentence, emissions from any oil or gas exploration or production well (with its associated equipment) and emission from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources.

For Title V purposes, all fugitive emissions of hazardous air pollutants are to be considered in determining whether a stationary source is a major source.

For radionuclides, "major source" shall have the meaning specified by the administrator by rule.

3. A major stationary source as defined in Part D of Title I of the Act, including:

For ozone nonattainment areas, sources with the potential to emit 100 tpy or more of volatile organic compounds or oxides of nitrogen in areas classified as "marginal" or "moderate," 50 tpy or more in areas classified as "serious," 25 tpy or more in areas classified as "severe" and 10 tpy or more in areas classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tpy of nitrogen oxides shall not apply with respect to any source for which the administrator has made a finding, under Section 182(f)(1) or (2) of the Act, that requirements under Section 182(f) of the Act do not apply;

For ozone transport regions established pursuant to Section 184 of the Act, sources with potential to emit 50 tpy or more of volatile organic compounds;

For carbon monoxide nonattainment areas (1) that are classified as "serious" and (2) in which stationary sources contribute significantly to carbon monoxide levels, and sources with the potential to emit 50 tpy or more of carbon monoxide;

For particulate matter (PM-10), nonattainment areas classified as "serious," sources with the potential to emit 70 tpy or more of PM-10.

For the purposes of defining "major source," a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same major group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987.

"Manually operated equipment" means a machine or tool that is handheld, such as a handheld circular saw or compressed air chisel; a machine or tool for which the work piece is held or manipulated by hand, such as a bench grinder; a machine or tool for which the tool or bit is manipulated by hand, such as a lathe or drill press; and any dust collection system which is part of such machine or tool; but not including any machine or tool for which the extent of manual operation is to control power to the machine or tool and not including any central dust collection system serving more than one machine or tool.

"Maximum achievable control technology (MACT)" means the following regarding regulated hazardous air pollutant sources:

1. For existing sources, the emissions limitation reflecting the maximum degree of reduction in emissions that the administrator or the department, taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impacts and energy requirements, determines is achievable by sources in the category of stationary sources, that shall not be less stringent than the MACT floor.

2. For new sources, the emission limitation which is not less stringent than the emission limitation achieved in practice by the best-controlled similar source, and which reflects the maximum degree of reduction in emissions that the administrator or the department, taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impacts and energy requirements, determines is achievable by sources in the Title IV affected source category.

"Maximum achievable control technology (MACT) floor" means the following:

1. For existing sources, the average emission limitation achieved by the best 12 percent of the existing sources in the United States (for which the administrator or the department has or could reasonably obtain emission information), excluding those sources that have, within 18 months before the emission standard is proposed or within 30 months before such standard is promulgated, whichever is later, first achieved a level of emission rate or emission reduction which complies, or would comply if the source is not subject to such standard, with the lowest achievable emission rate applicable to the source category and prevailing at the time, for categories and subcategories of stationary sources with 30 or more sources in the category or subcategory, or the average emission limitation achieved by the best performing 5 sources in the United States (for which the administrator or the department has or could reasonably obtain emissions information) for a category or subcategory or stationary source with fewer than 30 sources in the category or subcategory.

2. For new sources, the emission limitation achieved in practice by the best-controlled similar source.

"New Title IV affected source or unit" means a unit that commences commercial operation on or after November 15, 1990, including any such unit that serves a generator with a nameplate capacity of 25 MWe or less or that is a simple combustion turbine.

"Nonattainment area" means an area so designated by the administrator, acting pursuant to Section 107 of the Act.

"Permit modification" means a revision to a Title V operating permit that cannot be accomplished under the provisions for administrative permit amendments found at rule 567—22.111(455B). A permit modification for purposes of the acid rain portion of the permit shall be governed by the regulations

pertaining to acid rain found at rules 567—22.120(455B) to 567—22.147(455B). This definition of "permit modification" shall be used solely for purposes of this chapter governing Title V operating permits.

"Permit revision" means any permit modification or administrative permit amendment.

"Permitting authority" means the Iowa department of natural resources or the director thereof.

"Potential to emit" means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the administrator. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations relating to acid rain.

For the purpose of determining potential to emit for country grain elevators, the provisions set forth in subrule 22.10(2) shall apply.

For purposes of calculating potential to emit for emergency generators, "maximum capacity" means one of the following:

1. 500 hours of operation annually, if the generator has actually been operated less than 500 hours per year for the past five years;
2. 8,760 hours of operation annually, if the generator has actually been operated more than 500 hours in one of the past five years; or
3. The number of hours specified in a state or federally enforceable limit.

"Proposed Title V permit" means the version of a permit that the permitting authority proposes to issue and forwards to the administrator for review in compliance with 22.107(7)*"a."*

"Regulated air contaminant" shall mean the same thing as "regulated air pollutant."

"Regulated air pollutant" means the following:

1. Nitrogen oxides or any volatile organic compounds;
2. Any pollutant for which a national ambient air quality standard has been promulgated;
3. Any pollutant that is subject to any standard promulgated under Section 111 of the Act;
4. Any Class I or II substance subject to a standard promulgated under or established by Title VI of the Act; or
5. Any pollutant subject to a standard promulgated under Section 112 or other requirements established under Section 112 of the Act, including Sections 112(g), (j), and (r) of the Act, including the following:

- Any pollutant subject to requirements under Section 112(j) of the Act. If the administrator fails to promulgate a standard by the date established pursuant to Section 112(e) of the Act, any pollutant for which a subject source would be major shall be considered to be regulated on the date 18 months after the applicable date established pursuant to Section 112(e) of the Act; and
- Any pollutant for which the requirements of Section 112(g)(2) of the Act have been met, but only with respect to the individual source subject to the Section 112(g)(2) requirement.

6. With respect to Title V, particulate matter, except for PM10, is not considered a regulated air pollutant for the purpose of determining whether a source is considered to be a major source.

"Regulated air pollutant or contaminant (for fee calculation)," which is used only for purposes of rule 567—22.106(455B), means any "regulated air pollutant or contaminant" except the following:

1. Carbon monoxide;
2. Particulate matter, excluding PM10;
3. Any pollutant that is a regulated air pollutant solely because it is a Class I or II substance subject to a standard promulgated under or established by Title VI of the Act;
4. Any pollutant that is a regulated pollutant solely because it is subject to a standard or regulation under Section 112(r) of the Act.

"Renewal" means the process by which a permit is reissued at the end of its term.

"Responsible official" means one of the following:

1. For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

- The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or
- The delegation of authority to such representative is approved in advance by the permitting authority.

2. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

3. For a municipality, state, federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this chapter, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a regional administrator of EPA); or

4. For Title IV affected sources:

- The designated representative insofar as actions, standards, requirements, or prohibitions under Title IV of the Act or the regulations promulgated thereunder are concerned; and
- The designated representative for any other purposes under this chapter or the Act.

"Section 502(b)(10) changes" are changes that contravene an express permit term and which are made pursuant to rule 567—22.110(455B). Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements.

"State implementation plan (SIP)" means the plan adopted by the state of Iowa and approved by the administrator which provides for implementation, maintenance, and enforcement of such primary and secondary ambient air quality standards as are adopted by the administrator, pursuant to the Act.

"Stationary source" means any building, structure, facility, or installation that emits or may emit any regulated air pollutant or any pollutant listed under Section 112(b) of the Act.

"Stationary source categories" means any of the following classes of sources:

1. Coal cleaning plants with thermal dryers;
2. Kraft pulp mills;
3. Portland cement plants;
4. Primary zinc smelters;
5. Iron and steel mills;
6. Primary aluminum ore reduction plants;
7. Primary copper smelters;
8. Municipal incinerators capable of charging more than 250 tons of refuse per day;
9. Hydrofluoric, sulfuric, or nitric acid plants;
10. Petroleum refineries;
11. Lime plants;
12. Phosphate rock processing plants;
13. Coke oven batteries;
14. Sulfur recovery plants;
15. Carbon black plants using the furnace process;
16. Primary lead smelters;
17. Fuel conversion plants;
18. Sintering plants;
19. Secondary metal production plants;
20. Chemical process plants — The term chemical processing plant shall not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS code 325193 or 312140;

21. Fossil-fuel boilers, or combinations thereof, totaling more than 250 million Btu's per hour heat input;

22. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

23. Taconite ore processing plants;

24. Glass fiber processing plants;

25. Charcoal production plants;

26. Fossil fuel-fired steam electric plants of more than 250 million Btu's per hour heat input;

27. Any other stationary source category, which as of August 7, 1980, is regulated under Section 111 or 112 of the Act.

"Subject to regulation" means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally applicable regulation codified by the Administrator in 40 CFR Subchapter C (Air Programs) that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity, except that:

1. Greenhouse gases (GHGs), the air pollutant defined in 40 CFR §86.1818-12(a) (as amended on May 7, 2010) as the aggregate group of six greenhouse gases that includes carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, shall not be subject to regulation unless, as of July 1, 2011, the GHG emissions are at a stationary source emitting or having the potential to emit 100,000 tpy CO_2 equivalent emissions.

2. The term "tpy CO_2 equivalent emissions (CO_2e)" shall represent an amount of GHGs emitted and shall be computed by multiplying the mass amount of emissions (tpy) for each of the six greenhouse gases in the pollutant GHGs by the associated global warming potential of the gas published at 40 CFR Part 98, Subpart A, Table A-1, "Global Warming Potentials," (as amended on October 30, 2009) and summing the resultant value for each to compute a tpy CO_2e.

For purposes of this definition, prior to July 21, 2014, the mass of the greenhouse gas carbon dioxide shall not include carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms (including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material).

"Title V permit" means an operating permit under Title V of the Act.

"12-month rolling period" means a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

[**ARC 9224B**, IAB 11/17/10, effective 12/22/10; **ARC 9906B**, IAB 12/14/11, effective 11/16/11]

567—22.101(455B) Applicability of Title V operating permit requirements.

22.101(1) Except as provided in rule 567—22.102(455B), any person who owns or operates any of the following sources shall obtain a Title V operating permit:

a. Any affected source subject to the provisions of Title IV of the Act;

b. Any major source;

c. Any source, including any nonmajor source, subject to a standard, limitation, or other requirement under Section 111 of the Act (567—subrule 23.1(2), new source performance standards; 567—subrule 23.1(5), emission guidelines);

d. Any source, including any area source, subject to a standard or other requirement under Section 112 of the Act (567—subrules 23.1(3) and 23.1(4), emission standards for hazardous air pollutants), except that a source is not required to obtain a Title V permit solely because it is subject to regulations or requirements under Section 112(r) of the Act;

e. Any solid waste incinerator unit required to obtain a Title V permit under Section 129(e) of the Act;

f. Any source category designated by the Administrator pursuant to 40 CFR 70.3 as amended through December 19, 2005.

22.101(2) Any nonmajor source required to obtain a Title V operating permit pursuant to subrule 22.101(1) is required to obtain a Title V permit only for the emissions units and related equipment causing the source to be subject to the Title V program.

22.101(3) Election to apply for permit. Rescinded IAB 7/19/06, effective 8/23/06.

567—22.102(455B) Source category exemptions.

22.102(1) All sources listed in subrule 22.101(1) that are not major sources, affected sources subject to the provisions of Title IV of the Act or solid waste incineration units required to obtain a permit pursuant to Section 129(e) of the Act are exempt from the obligation to obtain a Title V permit until such time as the Administrator completes a rule making to determine how the program should be structured for nonmajor sources and the appropriateness of any permanent exemptions in addition to those provided for in subrule 22.102(3).

22.102(2) In the case of nonmajor sources subject to a standard or other requirement under either Section 111 or Section 112 of the Act after July 21, 1992, publication, the Administrator will determine at the time the new or amended standard is promulgated whether to exempt any or all such applicable sources from the requirement to obtain a Title V permit.

22.102(3) The following source categories are exempt from the obligation to obtain a Title V permit:

a. All sources and source categories that would be required to obtain a Title V permit solely because they are subject to 40 CFR 60, Subpart AAA, Standards of Performance for New Residential Wood Heaters, as amended through December 14, 2000;

b. All sources and source categories that would be required to obtain a Title V permit solely because they are subject to 40 CFR 61, Subpart M, National Emission Standard for Hazardous Air Pollutants for Asbestos, Section 61.145, Standard for Demolition and Renovation, as amended through July 20, 2004;

c. All sources and source categories that would be required to obtain a Title V permit solely because they are subject to any of the following subparts from 40 CFR 63:

(1) Subpart M, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, as amended through December 19, 2005.

(2) Subpart N, National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, as amended through December 19, 2005.

(3) Subpart O, Ethylene Oxide Emissions Standards for Sterilization Facilities, as amended through December 19, 2005.

(4) Subpart T, National Emission Standards for Halogenated Solvent Cleaning, as amended through December 19, 2005.

(5) Subpart RRR, National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production, as amended through December 19, 2005.

(6) Subpart VVV, National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works, as amended through June 23, 2003.

567—22.103(455B) Insignificant activities. The following are insignificant activities for purposes of the Title V application if not needed to determine the applicability of or to impose any applicable requirement. Title V permit fees are not required from insignificant activities pursuant to subrule 22.106(7).

22.103(1) *Insignificant activities excluded from Title V operating permit application.* In accordance with 40 CFR 70.5 (as amended through July 21, 1992), these activities need not be included in the Title V permit application.

a. Mobile internal combustion and jet engines, marine vessels, and locomotives.

b. Equipment, other than anaerobic lagoons, used for cultivating land, harvesting crops, or raising livestock. This exemption is not applicable if the equipment is used to remove substances from grain which were applied to the grain by another person. This exemption also is not applicable to equipment used by a person to manufacture commercial feed, as defined in Iowa Code section 198.3, when that feed is normally not fed to livestock:

(1) Owned by that person or another person, and

(2) Located in a feedlot, as defined in Iowa Code section 172D.1(6), or in a confinement building owned or operated by that person, and

(3) Located in this state.

c. Equipment or control equipment which eliminates all emissions to the atmosphere.

d. Equipment (other than anaerobic lagoons) or control equipment which emits odors unless such equipment or control equipment also emits particulate matter or any other air pollutant or contaminant.

e. Air conditioning or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment.

f. Residential wood heaters, cookstoves, or fireplaces.

g. The equipment in laboratories used exclusively for nonproduction chemical and physical analyses. Nonproduction analyses means analyses incidental to the production of a good or service and includes analyses conducted for quality assurance or quality control activities, or for the assessment of environmental impact.

h. Recreational fireplaces.

i. Barbecue pits and cookers except at a meat packing plant or a prepared meat manufacturing facility.

j. Stacks or vents to prevent escape of sewer gases through plumbing traps for systems handling domestic sewage only. Systems which include any industrial waste are not exempt.

k. Retail gasoline and diesel fuel handling facilities.

l. Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy.

m. Equipment used for hydraulic or hydrostatic testing.

n. General vehicle maintenance and servicing activities at the source, other than gasoline fuel handling.

o. Cafeterias, kitchens, and other facilities used for preparing food or beverages primarily for consumption at the source.

p. Equipment using water, water and soap or detergent, or a suspension of abrasives in water for purposes of cleaning or finishing provided no organic solvent has been added to the water, the boiling point of the additive is not less than 100°C (212°F), and the water is not heated above 65.5°C (150°F).

q. Administrative activities including, but not limited to, paper shredding, copying, photographic activities, and blueprinting machines. This does not include incinerators.

r. Laundry dryers, extractors, and tumblers processing clothing, bedding, and other fabric items used at the source that have been cleaned with water solutions of bleach or detergents provided that any organic solvent present in such items before processing that is retained from cleanup operations shall be addressed as part of the volatile organic compound emissions from use of cleaning materials.

s. Housekeeping activities for cleaning purposes, including collecting spilled and accumulated materials at the source, but not including use of cleaning materials that contain organic solvent.

t. Refrigeration systems, including storage tanks used in refrigeration systems, but excluding any combustion equipment associated with such systems.

u. Activities associated with the construction, on-site repair, maintenance or dismantlement of buildings, utility lines, pipelines, wells, excavations, earthworks and other structures that do not constitute emission units.

v. Storage tanks of organic liquids with a capacity of less than 500 gallons, provided the tank is not used for storage of any material listed as a hazardous air pollutant pursuant to Section 112(b) of the Clean Air Act.

w. Piping and storage systems for natural gas, propane, and liquified petroleum gas, excluding pipeline compressor stations and associated storage facilities.

x. Water treatment or storage systems, as follows:

(1) Systems for potable water or boiler feedwater.

(2) Systems, including cooling towers, for process water provided that such water has not been in direct or indirect contact with process steams that contain volatile organic material or materials listed as hazardous air pollutants pursuant to Section 112(b) of the Clean Air Act.

y. Lawn care, landscape maintenance, and groundskeeping activities.

z. Containers, reservoirs, or tanks used exclusively in dipping operations to coat objects with oils, waxes, or greases, provided no organic solvent has been mixed with such materials.

aa. Cold cleaning degreasers that are not in-line cleaning machines, where the vapor pressure of the solvents used never exceeds 2 kPa (15 mmHg or 0.3 psi) measured at 38°C (100°F) or 0.7 kPa (5 mmHg or 0.1 psi) at 20°C (68°F). (Note: Cold cleaners subject to 40 CFR Part 63 Subpart T are not considered insignificant activities.)

bb. Manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, scarfing, surface grinding or turning.

cc. Use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.), when the product is used at a source in the same manner as normal consumer use.

dd. Activities directly used in the diagnosis and treatment of disease, injury or other medical condition.

ee. Firefighting activities and training in preparation for fighting fires conducted at the source. (Note: Written notification pursuant to 567—paragraph 23.2(3)*"g"* is required at least ten working days before such action commences.)

ff. Activities associated with the construction, repair or maintenance of roads or other paved or open areas, including operation of street sweepers, vacuum trucks, spray trucks and other vehicles related to the control of fugitive emissions of such roads or other areas.

gg. Storage and handling of drums or other transportable containers when the containers are sealed during storage and handling.

hh. Individual points of emission or activities as follows:

(1) Individual flanges, valves, pump seals, pressure relief valves and other individual components that have the potential for leaks.

(2) Individual sampling points, analyzers, and process instrumentation, whose opreation may result in emissions.

(3) Individual features of an emission unit such as each burner and sootblower in a boiler or each use of cleaning materials on a coating or printing line.

ii. Construction activities at a source solely associated with the modification or building of a facility, an emission unit or other equipment at the source. (Note: Notwithstanding the status of this activity as insignificant, a particular activity that entails modification or construction of an emission unit or construction of air pollution control equipment may require a construction permit pursuant to 22.1(455B) and may subsequently require a revised Title V operating permit. A revised Title V operating permit may also be necessary for operation of an emission unit after completion of a particular activity if the existing Title V operating permit does not accommodate the new state of the emission unit.)

jj. Activities at a source associated with the maintenance, repair, or dismantlement of an emission unit or other equipment installed at the source, including preparation for maintenance, repair or dismantlement, and preparation for subsequent startup, including preparation of a shutdown vessel for entry, replacement of insulation, welding and cutting, and steam purging of a vessel prior to startup.

22.103(2) *Insignificant activities which must be included in Title V operating permit applications.*

a. The following are insignificant activities based on potential emissions:

An emission unit which has the potential to emit less than:

5 tons per year of any regulated air pollutant, except:

2.5 tons per year of PM-10,

40 lbs per year of lead or lead compounds,

2500 lbs per year of any combination of hazardous air pollutants except high-risk pollutants,

1000 lbs per year of any individual hazardous air pollutant except high-risk pollutants,

250 lbs per year of any combination of high-risk pollutants, or

100 lbs per year of any individual high-risk pollutant.

The definition of "high risk pollutant" is found in rule 567—22.100(455B).

b. The following are insignificant activities:

(1) Fuel-burning equipment for indirect heating and reheating furnaces using natural or liquefied petroleum gas with a capacity of less than 10 million Btu per hour input per combustion unit.

(2) Fuel-burning equipment for indirect heating with a capacity of less than 1 million Btu per hour input per combustion unit when burning coal, untreated wood, or fuel oil.

(3) Incinerators with a rated refuse burning capacity of less than 25 pounds per hour.

(4) Gasoline, diesel fuel, or oil storage tanks with a capacity of 1,000 gallons or less and an annual throughput of less than 40,000 gallons.

(5) A storage tank which contains no volatile organic compounds above a vapor pressure of 0.75 pounds per square inch at the normal operating temperature of the tank when other emissions from the tank do not exceed the levels in paragraph 22.103(2)*"a."*

(6) Internal combustion engines that are used for emergency response purposes with a brake horsepower rating of less than 400 measured at the shaft. The manufacturer's nameplate rating at full load shall be defined as the brake horsepower output at the shaft.

567—22.104(455B) Requirement to have a Title V permit. No source may operate after the time that it is required to submit a timely and complete application, except in compliance with a properly issued Title V operating permit. However, if a source submits a timely and complete application for permit issuance (including renewal), the source's failure to have a permit is not a violation of this chapter until the director takes final action on the permit application, except as noted in this rule. In that case, all terms and conditions of the permit shall remain in effect until the renewal permit has been issued or denied.

22.104(1) This protection shall cease to apply if, subsequent to the completeness determination, the applicant fails to submit, by the deadline specified in writing by the director, any additional information identified as being needed to process the application.

22.104(2) Sources making permit revisions pursuant to rule 567—22.110(455B) shall not be in violation of this rule.

567—22.105(455B) Title V permit applications.

22.105(1) *Duty to apply.* For each source required to obtain a Title V permit, the owner or operator or designated representative, where applicable, shall present or mail a complete and timely permit application in accordance with this rule to the following locations: Iowa Department of Natural Resources, Air Quality Bureau, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324 (two copies); and U.S. EPA Region VII, 901 North 5th Street, Kansas City, Kansas 66101 (one copy); and, if applicable, the local permitting authority, which is either Linn County Public Health Department, Air Quality Division, 501 13th Street NW, Cedar Rapids, Iowa 52405 (one copy); or Polk County Public Works, Air Quality Division, 5885 NE 14th Street, Des Moines, Iowa 50313 (one copy). Alternatively, an owner or operator may submit a complete and timely application through the electronic submittal format specified by the department.

a. Timely application. Each owner or operator applying for a Title V permit shall submit an application as follows:

(1) Initial application for an existing source. The owner or operator of a stationary source that was existing on or before April 20, 1994, shall make the first time submittals of a Title V permit application to the department by November 15, 1994. However, the owner or operator may choose to defer submittal of Part 2 of the permit application until December 31, 1995. The department will mail notice of the deadline for Part 2 of the permit application to all applicants who have filed Part 1 of the application by October 17, 1995.

(2) Initial application for a new source. The owner or operator of a stationary source that commenced construction or reconstruction after April 20, 1994, or that otherwise became subject to the requirement to obtain a Title V permit after April 20, 1994, shall submit an application to the department within 12 months of becoming subject to the Title V permit requirements.

(3) Application related to 112(g), PSD or nonattainment. The owner or operator of a stationary source that is subject to Section 112(g) of the Act, that is subject to rule 567—22.4(455B) (prevention of significant deterioration (PSD)), or that is subject to rule 567—22.5(455B) (nonattainment area permitting) shall submit an application to the department within 12 months of commencing operation. In cases in which an existing Title V permit would prohibit such construction or change in operation, the owner or operator must obtain a Title V permit revision before commencing operation.

(4) Renewal application. The owner or operator of a stationary source with a Title V permit shall submit an application to the department for a permit renewal at least 6 months prior to, but not more than 18 months prior to, the date of permit expiration.

(5) Changes allowed without a permit revision (off-permit revision). The owner or operator of a stationary source with a Title V permit who is proposing a change that is allowed without a Title V permit revision (an off-permit revision) as specified in rule 567—22.110(455B) shall submit to the department a written notification as specified in rule 567—22.110(455B) at least 30 days prior to the proposed change.

(6) Application for an administrative permit amendment. Prior to implementing a change that satisfies the requirements for an administrative permit amendment as set forth in rule 567—22.111(455B), the owner or operator shall submit to the department an application for an administrative amendment as specified in rule 567—22.111(455B).

(7) Application for a minor permit modification. Prior to implementing a change that satisfies the requirements for a minor permit modification as set forth in rule 567—22.112(455B), the owner or operator shall submit to the department an application for a minor permit modification as specified in rule 567—22.112(455B).

(8) Application for a significant permit modification. The owner or operator of a source that satisfies the requirements for a significant permit modification as set forth in rule 567—22.113(455B) shall submit to the department an application for a significant permit modification as specified in rule 567—22.113(455B) within three months after the commencing operation of the changed source. However, if the existing Title V permit would prohibit such construction or change in operation, the owner or operator shall not commence operation of the changed source until the department issues a revised Title V permit that allows the change.

(9) Application for an acid rain permit. The owner or operator of a source subject to the acid rain program, as set forth in rules 567—22.120(455B) through 567—22.148(455B), shall submit an application for an initial Phase II acid rain permit by January 1, 1996 (for sulfur dioxide), or by January 1, 1998 (for nitrogen oxides).

b. Complete application. To be deemed complete, an application must provide all information required pursuant to subrule 22.105(2), except that applications for permit revision need supply such information only if it is related to the proposed change.

22.105(2) *Standard application form and required information.* To apply for a Title V permit, applicants shall complete the standard permit application form available only from the department of natural resources and supply all information required by the filing instructions found on that form. The information submitted must be sufficient to evaluate the source and its application and to determine all applicable requirements and to evaluate the fee amount required by rule 567—22.106(455B). If a source is not a major source and is applying for a Title V operating permit solely because of a requirement imposed by paragraphs 22.101(1)*"c"* and *"d,"* then the information provided in the operating permit application may cover only the emissions units that trigger Title V applicability. The applicant shall submit the information called for by the application form for each emissions unit to be permitted, except for activities which are insignificant according to the provisions of rule 567—22.103(455B). The applicant shall provide a list of all insignificant activities and specify the basis for the determination of insignificance for each activity. Nationally standardized forms shall be used for the acid rain portions of permit applications and compliance plans, as required by regulations promulgated under Title IV of the Act. The standard application form and any attachments shall require that the following information be provided:

a. Identifying information, including company name and address (or plant or source name if different from the company name), owner's name and agent, and telephone number and names of plant site manager/contact.

b. A description of the source's processes and products (by two-digit Standard Industrial Classification Code) including any associated with each alternate scenario identified by the applicant.

c. The following emissions-related information shall be submitted to the department on the emissions inventory portion of the application:

(1) All emissions of pollutants for which the source is major, and all emissions of regulated air pollutants. The permit application shall describe all emissions of regulated air pollutants emitted from any emissions unit except where such units are exempted. The source shall submit additional information related to the emissions of air pollutants sufficient to verify which requirements are applicable to the source, and other information necessary to collect any permit fees owed under the approved fee schedule.

(2) Identification and description of all points of emissions in sufficient detail to establish the basis for fees and the applicability of any and all requirements.

(3) Emissions rates in tons per year and in such terms as are necessary to establish compliance consistent with the applicable standard reference test method, if any.

(4) The following information to the extent it is needed to determine or regulate emissions: fuels, fuel use, raw materials, production rates, and operating schedules.

(5) Identification and description of air pollution control equipment.

(6) Identification and description of compliance monitoring devices or activities.

(7) Limitations on source operations affecting emissions or any work practice standards, where applicable, for all regulated pollutants.

(8) Other information required by any applicable requirement (including information related to stack height limitations developed pursuant to Section 123 of the Act).

(9) Calculations on which the information in subparagraphs (1) to (8) above is based.

(10) Fugitive emissions from a source shall be included in the permit application in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

d. The following air pollution control requirements:

(1) Citation and description of all applicable requirements, and

(2) Description of or reference to any applicable test method for determining compliance with each applicable requirement.

e. Other specific information that may be necessary to implement and enforce other applicable requirements of the Act or of these rules or to determine the applicability of such requirements.

f. An explanation of any proposed exemptions from otherwise applicable requirements.

g. Additional information as determined to be necessary by the director to define alternative operating scenarios identified by the source pursuant to subrule 22.108(12) or to define permit terms and conditions relating to operational flexibility and emissions trading pursuant to subrule 22.108(11) and rule 567—22.112(455B).

h. A compliance plan that contains the following:

(1) A description of the compliance status of the source with respect to all applicable requirements.

(2) The following statements regarding compliance status: For applicable requirements with which the stationary source is in compliance, a statement that the stationary source will continue to comply with such requirements. For applicable requirements that will become effective during the permit term, a statement that the stationary source will meet such requirements on a timely basis. For requirements for which the stationary source is not in compliance at the time of permit issuance, a narrative description of how the stationary source will achieve compliance with such requirements.

(3) A compliance schedule that contains the following:

1. For applicable requirements with which the stationary source is in compliance, a statement that the stationary source will continue to comply with such requirements. For applicable requirements that will become effective during the permit term, a statement that the stationary source will meet such requirements on a timely basis. A statement that the stationary source will meet in a timely manner

applicable requirements that become effective during the permit term shall satisfy this provision, unless a more detailed schedule is expressly required by the applicable requirement.

2. A compliance schedule for sources that are not in compliance with all applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the stationary source will be in noncompliance at the time of permit issuance.

3. This compliance schedule shall resemble and be at least as stringent as any compliance schedule contained in any judicial consent decree or administrative order to which the source is subject. Any compliance schedule shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

(4) A schedule for submission of certified progress reports no less frequently than every six months for sources required to have a compliance schedule in the permit.

i. Requirements for compliance certification, including the following:

(1) A certification of compliance for the prior year with all applicable requirements certified by a responsible official consistent with subrule 22.107(4) and Section 114(a)(3) of the Act.

(2) A statement of methods used for determining compliance, including a description of monitoring, record keeping, and reporting requirements and test methods.

(3) A schedule for submission of compliance certifications for each compliance period (one year unless required for a shorter time period by an applicable requirement) during the permit term, which shall be submitted annually, or more frequently if required by an underlying applicable requirement or by the director.

(4) A statement indicating the source's compliance status with any applicable enhanced monitoring and compliance certification requirements of the Act.

(5) Notwithstanding any other provisions of these rules, for the purposes of submission of compliance certifications, an owner or operator is not prohibited from using monitoring as required by subrules 22.108(3), 22.108(4) or 22.108(5) and incorporated into a Title V operating permit in addition to any specified compliance methods.

j. The compliance plan content requirements specified in these rules shall apply and be included in the acid rain portion of a compliance plan for a Title IV affected source, except as specifically superseded by regulations promulgated under Title IV of the Act, with regard to the schedule and method(s) the source shall use to achieve compliance with the acid rain emissions limitations.

22.105(3) *Hazardous air pollutant early reduction application.* Anyone requesting a compliance extension from a standard issued under Section 112(d) of the Act must submit with its Title V permit application information that complies with the requirements established in 567—paragraph 23.1(4)*"d."*

22.105(4) *Acid rain application content.* The acid rain application content shall be as prescribed in the acid rain rules found at rules 567—22.128(455B) and 567—22.129(455B).

22.105(5) *More than one Title V operating permit for a stationary source.* Following application made pursuant to subrule 22.105(1), the department may, at its discretion, issue more than one Title V operating permit for a stationary source, provided that the owner or operator does not have, and does not propose to have, a sourcewide emission limit or a sourcewide alternative operating scenario.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09]

567—22.106(455B) Title V permit fees.

22.106(1) *Fee established.* Any person required to obtain a Title V permit shall pay an annual fee based on the total tons of actual emissions of each regulated air pollutant, beginning November 15, 1994. Beginning July 1, 1996, Title V operating permit fees will be paid on or before July 1 of each year. The fee shall be based on actual emissions required to be included in the Title V operating permit application and the annual emissions statement for the previous calendar year. The department and the commission will review the fee structure on an annual basis and adjust the fee as necessary to cover all reasonable costs required to develop and administer the programs required by the Act. The department shall submit the proposed budget for the following fiscal year to the commission no later than the March meeting. The commission shall set the fee based on the reasonable cost to run the program and the proposed budget

no later than the May commission meeting of each year. The commission shall provide an opportunity for public comment prior to setting the fee. The commission shall not set the fee higher than $56 per ton without adopting the change pursuant to formal rule making.

22.106(2) *Fee calculation.* The fee amount shall be calculated based on the first 4,000 tons of each regulated air pollutant or contaminant emitted each year from each major source.

22.106(3) *Fee and documentation due dates.*

a. The fee shall be submitted annually by July 1. For emissions located in Polk County or Linn County, the fee shall be submitted with three copies of the following forms. For emissions in all remaining counties, the fee shall be submitted with two copies of the following forms:

1. Form 1.0 "Facility identification";
2. Form 5.0 "Title V annual emissions summary/fee"; and
3. Part 3 "Application certification."

b. For emissions located in Polk County or Linn County, three copies of the following forms shall be submitted annually by March 31 documenting actual emissions for the previous calendar year. For emissions in all other counties, two copies of the following forms shall be submitted:

1. Form 1.0 "Facility identification";
2. Form 4.0 "Emission unit—actual operations and emissions" for each emission unit;
3. Form 5.0 "Title V annual emissions summary/fee"; and
4. Part 3 "Application certification."

Alternatively, an owner or operator may submit the required emissions inventory information through the electronic submittal format specified by the department.

If there are any changes to the emission calculation form, the department shall make revised forms available to the public by January 1. If revised forms are not available by January 1, forms from the previous year may be used and the year of emissions documented changed. The department shall calculate the total statewide Title V emissions for the prior calendar year and make this information available to the public no later than April 30 of each year.

22.106(4) *Phase I acid rain sources.* No fee shall be required to be paid for emissions which occur during the years 1993 through 1999 inclusive, with respect to any Phase I acid rain affected unit under Section 404 of the Act.

22.106(5) *Operation in Iowa.* The fee for a portable emissions unit or stationary source which operates both in Iowa and out of state shall be calculated only for emissions from the source while operating in Iowa.

22.106(6) *Title V exempted stationary sources.* No fee shall be required to be paid for emissions until the year in which sources exempted under subrules 22.102(1) and 22.102(2) are required to apply for a Title V permit. Fees shall be paid for the emission year preceding the year in which the application is due and thereafter.

22.106(7) *Insignificant activities.* No fee shall be required to be paid for insignificant activities, as defined in rule 567—22.103(455B).

22.106(8) *Correction of errors.* If an owner or operator, or the department, finds an error in a Title V emissions inventory or Title V fee payment, the owner or operator shall submit to the department revised forms making the necessary corrections to the Title V emissions inventory or Title V fee payment. Forms shall be submitted as soon as possible after the errors are discovered or upon notification by the department.

567—22.107(455B) Title V permit processing procedures.

22.107(1) *Action on application.*

a. Conditions for action on application. A permit, permit modification, or renewal may be issued only if all of the following conditions have been met:

(1) The permitting authority has received a complete application for a permit, permit modification, or permit renewal, except that a complete application need not be received before issuance of a general permit under rule 567—22.109(455B);

(2) Except for modifications qualifying for minor permit modification procedures under rule 22.112(455B), the permitting authority has complied with the requirements for public participation under subrule 22.107(6);

(3) The permitting authority has complied with the requirements for notifying and responding to affected states under subrule 22.107(7);

(4) The conditions of the permit provide for compliance with all applicable requirements and the requirements of this chapter;

(5) The administrator has received a copy of the proposed permit and any notices required under subrule 22.107(7), and has not objected to issuance of the permit under subrule 22.107(7) within the time period specified therein;

(6) If the administrator has properly objected to the permit pursuant to the provisions of 40 CFR 70.8(d) as amended to July 21, 1992, or subrule 22.107(7), then the permitting authority may issue a permit only after the administrator's objection has been resolved; and

(7) No permit for a solid waste incineration unit combusting municipal waste subject to the provisions of Section 129(e) of the Act may be issued by an agency, instrumentality or person that is also responsible, in whole or part, for the design and construction or operation of the unit.

b. Time for action on application. The permitting authority shall take final action on each complete permit application (including a request for permit modification or renewal) within 18 months of receiving a complete application, except in the following instances:

(1) When otherwise provided under Title V or Title IV of the Act for the permitting of affected sources under the acid rain program.

(2) In the case of initial permit applications, the permitting authority may take up to three years from the effective date of the program to take final action on an application.

(3) Any complete permit applications containing an early reduction demonstration under Section 112(i)(5) of the Act shall be acted upon within nine months of receipt of the complete application.

c. Prioritization of applications. The director shall give priority to action on Title V applications involving construction or modification for which a construction permit pursuant to subrule 22.1(1) or Title I of the Act, Parts C and D, is also required. The director also shall give priority to action on Title V applications involving early reduction of hazardous air pollutants pursuant to 567—paragraph 23.1(4)*"d."*

d. Completeness of applications. The department shall promptly provide notice to the applicant of whether the application is complete. Unless the permitting authority requests additional information or otherwise notifies the applicant of incompleteness within 60 days of receipt of an application, the application shall be deemed complete. If, while processing an application that has been determined to be complete, the permitting authority determines that additional information is necessary to evaluate or take final action on that application, the permitting authority may request in writing such information and set a reasonable deadline for a response. The source's ability to operate without a permit, as set forth in rule 567—22.104(455B), shall be in effect from the date the application is determined to be complete until the final permit is issued, provided that the applicant submits any requested additional information by the deadline specified by the permitting authority. For modifications processed through minor permit modification procedures, a completeness determination shall not be required.

e. Decision to deny a permit application. The director shall decide to issue or deny the permit. The director shall notify the applicant as soon as practicable that the application has been denied. Upon denial of the permit the provisions of paragraph 22.107(1)*"d"* shall no longer be applicable. The new application shall be regarded as an entirely separate application containing all the required information and shall not depend on references to any documents contained in the previous denied application.

f. Fact sheet. A draft permit and fact sheet shall be prepared by the permitting authority. The fact sheet shall include the rationale for issuance or denial of the permit; a brief description of the type of facility; a summary of the type and quantity of air pollutants being emitted; a brief summary of the legal and factual basis for the draft permit conditions, including references to applicable statutes and rules; a description of the procedures for reaching final decision on the draft permit including the comment period, the address where comments will be received, and procedures for requesting a hearing

and the nature of the hearing; and the name and telephone number for a person to contact for additional information. The permitting authority shall provide the fact sheet to EPA and to any other person who requests it.

g. Relation to construction permits. The submittal of a complete application shall not affect the requirement that any source have a construction permit under Title I of the Act and subrule 22.1(1).

22.107(2) *Confidential information.* If a source has submitted information with an application under a claim of confidentiality to the department, the source shall also submit a copy of such information directly to the administrator. Requests for confidentiality must comply with 561—Chapter 2.

22.107(3) *Duty to supplement or correct application.* Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date the source filed a complete application but prior to release of a draft permit. Applicants who have filed a complete application shall have 60 days following notification by the department to file any amendments. Any MACT determinations in permit applications will be evaluated based on the standards, limitations or levels of technology existing on the date the initial application is deemed complete.

22.107(4) *Certification of truth, accuracy, and completeness.* Any application form, report, or compliance certification submitted pursuant to these rules shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under these rules shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

22.107(5) *Early reduction application evaluation.* Hazardous air pollutant early reduction application evaluation review shall follow the procedures established in 567—paragraph 23.1(4)*"d."*

22.107(6) *Public notice and public participation.*

a. The permitting authority shall provide public notice and an opportunity for public comments, including an opportunity for a hearing, before taking any of the following actions: issuance, denial or renewal of a permit; or significant modification or revocation or reissuance of a permit.

b. Notice shall be given by publication in a newspaper of general circulation in the area where the source is located or in a state publication designed to give general public notice. Notice also shall be given to persons on a mailing list developed by the permitting authority, including those who request in writing to be on the list. The department may use other means if necessary to ensure adequate notice to the affected public.

c. The public notice shall include the following:

(1) Identification of the Title V source.

(2) Name and address of the permittee.

(3) Name and address of the permitting authority processing the permit.

(4) The activity or activities involved in the permit action.

(5) The emissions change involved in any permit modification.

(6) The air pollutants or contaminants to be emitted.

(7) The time and place of any possible public hearing.

(8) A statement that any person may submit written and signed comments, or may request a public hearing, or both, on the proposed permit. A statement of procedures to request a public hearing shall be included.

(9) The name, address, and telephone number of a person from whom additional information may be obtained. Information entitled to confidential treatment pursuant to Section 114(c) of the Act or state law shall not be released pursuant to this provision. However, the contents of a Title V permit shall not be entitled to protection under Section 114(c) of the Act.

(10) Locations where copies of the permit application and the proposed permit may be reviewed, including the closest department office, and the times at which they shall be available for public inspection.

d. At least 30 days shall be provided for public comment. Notice of any public hearing shall be given at least 30 days in advance of the hearing.

e. Any person may request a public hearing. A request for a public hearing shall be in writing and shall state the person's interest in the subject matter and the nature of the issues proposed to be raised at the hearing. The director shall hold a public hearing upon finding, on the basis of requests, a significant degree of relevant public interest in a draft permit. A public hearing also may be held at the director's discretion.

f. The director shall keep a record of the commenters and of the issues raised during the public participation process and shall prepare written responses to all comments received. At the time a final decision is made, the record and copies of the director's responses shall be made available to the public.

g. The permitting authority shall provide notice and opportunity for participation by affected states as provided by subrule 22.107(7).

22.107(7) *Permit review by EPA and affected states.*

a. Transmission of information to the administrator. Except as provided in subrule 22.107(2) or waived by the administrator, the director shall provide to the administrator a copy of each permit application or modification application, including any attachments and compliance plans; each proposed permit; and each final permit. For purposes of this subrule, the application information may be submitted in a computer-readable format compatible with the administrator's national database management system.

b. Review by affected states. The director shall provide notice of each draft permit to any affected state on or before the time that public notice is provided to the public pursuant to subrule 22.107(6), except to the extent that subrule 22.112(3) requires the timing of the notice to be different. If the director refuses to accept a recommendation of any affected state, submitted during the public or affected state review period, then the director shall notify the administrator and the affected state in writing. The notification shall include the director's reasons for not accepting the recommendation(s). The director shall not be required to accept recommendations that are not based on applicable requirements.

c. EPA objection. No permit for which an application must be transmitted to the administrator shall be issued if the administrator objects in writing to its issuance as not in compliance with the applicable requirements within 45 days after receiving a copy of the proposed permit and necessary supporting information under 22.107(7)*"a."* Within 90 days after the date of an EPA objection made pursuant to this rule, the director shall submit a response to the objection, if the objection has not been resolved.

22.107(8) *Public petitions to the administrator regarding Title V permits.*

a. If the administrator does not object to a proposed permit, any person may petition the administrator within 60 days after the expiration of the administrator's 45-day review period to make an objection pursuant to 40 CFR 70.8(d) as amended to July 21, 1992.

b. Any person who petitions the administrator pursuant to the provisions of 40 CFR 70.8(d) as amended to July 21, 1992, shall notify the department by certified mail of such petition immediately, and in no case more than 10 days following the date the petition is submitted to EPA. Such notice shall include a copy of the petition submitted to EPA and a separate written statement detailing the grounds for the objection(s) and whether the objection(s) was raised during the public comment period. A petition for review shall not stay the effectiveness of a permit or its requirements if the permit was issued after the end of the 45-day EPA review period and prior to the administrator's objection.

c. If the administrator objects to the permit as a result of a petition filed pursuant to 40 CFR 70.8(d) as amended to July 21, 1992, then the director shall not issue a permit until the administrator's objection has been resolved. However, if the director has issued a permit prior to receipt of the administrator's objection, and the administrator modifies, terminates, or revokes such permit, consistent with the procedures in 40 CFR 70.7 as amended to July 21, 1992, then the director may thereafter issue only a revised permit that satisfies the administrator's objection. In any case, the source shall not be in violation of the requirement to have submitted a timely and complete application.

22.107(9) *A Title V permit application may be denied if:*

a. The director finds that a source is not in compliance with any applicable requirement; or

b. An applicant knowingly submits false information in a permit application.

22.107(10) *Retention of permit records.* The director shall keep all records associated with each permit for a minimum of five years.

567—22.108(455B) Permit content. Each Title V permit shall include the following elements:

22.108(1) Enforceable emission limitations and standards. Each permit issued pursuant to this chapter shall include emissions limitations and standards, including those operational requirements and limitations that ensure compliance with all applicable requirements at the time of permit issuance.

a. The permit shall specify and reference the origin of and authority for each term or condition and identify any difference in form as compared to the applicable requirement upon which the term or condition is based.

b. The permit shall state that, where an applicable requirement of the Act is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, both provisions shall be incorporated into the permit and shall be enforceable by the administrator.

c. If an applicable implementation plan allows a determination of an alternative emission limit at a Title V source, equivalent to that contained in the plan, to be made in the permit issuance, renewal, or significant modification process, and the state elects to use such process, then any permit containing such equivalency determination shall contain provisions to ensure that any resulting emissions limit has been demonstrated to be quantifiable, accountable, enforceable, and based on replicable procedures.

d. If an early reduction demonstration is approved as part of the Title V permit application, the permit shall include enforceable alternative emissions limitations for the source reflecting the reduction which qualified the source for the compliance extension.

e. Fugitive emissions from a source shall be included in the permit in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

f. For all major sources, all applicable requirements for all relevant emissions units in the major source shall be included in the permit.

22.108(2) Permit duration. The permit shall specify a fixed term not to exceed five years except:

a. Permits issued to Title IV affected sources shall have a fixed term of five years.

b. Permits issued to solid waste incineration units combusting municipal waste subject to standards under Section 129(e) of the Act shall have a term not to exceed 12 years. Such permits shall be reviewed every five years.

22.108(3) Monitoring. Each permit shall contain the following requirements with respect to monitoring:

a. All emissions monitoring and analysis procedures or test methods required under the applicable requirements, including any procedures and methods promulgated pursuant to Section 114(a)(3) or 504(b) of the Act;

b. Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of record keeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to subrule 22.108(5). Such monitoring shall be determined by application of the "Periodic Monitoring Guidance" (June 18, 2001) available from the department;

c. As necessary, requirements concerning the use, maintenance, and, where appropriate, installation of monitoring equipment or methods; and

d. As required, Compliance Assurance Monitoring (CAM) consistent with 40 CFR Part 64 (as amended through October 22, 1997).

22.108(4) Record keeping. With respect to record keeping, the permit shall incorporate all applicable record-keeping requirements and require, where applicable, the following:

a. Records of required monitoring information that include the following:

(1) The date, place as defined in the permit, and time of sampling or measurements;

(2) The date(s) the analyses were performed;

(3) The company or entity that performed the analyses;

(4) The analytical techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions as existing at the time of sampling or measurement; and

b. Retention of records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart and other recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

22.108(5) Reporting. With respect to reporting, the permit shall incorporate all applicable reporting requirements and shall require the following:

a. Submittal of reports of any required monitoring at least every six months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with subrule 22.107(4).

b. Prompt reporting of deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. The director shall define "prompt" in relation to the degree and type of deviation likely to occur and the applicable requirements.

22.108(6) Risk management plan. Pursuant to Section 112(r)(7)(E) of the Act, if the source is required to develop and register a risk management plan pursuant to Section 112(r) of the Act, the permit shall state the requirement for submission of the plan to the air quality bureau of the department. The permit shall also require filing the plan with appropriate authorities and an annual certification to the department that the plan is being properly implemented.

22.108(7) A permit condition prohibiting emissions exceeding any allowances that the affected source lawfully holds under Title IV of the Act or the regulations promulgated thereunder.

a. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement.

b. No limit shall be placed on the number of allowances held by the Title IV affected source. The Title IV affected source may not, however, use allowances as a defense to noncompliance with any other applicable requirement.

c. Any such allowances shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Act.

d. Any permit issued pursuant to the requirements of these rules and Title V of the Act to a unit subject to the provisions of Title IV of the Act shall include conditions prohibiting all of the following:

(1) Annual emissions of sulfur dioxide in excess of the number of allowances to emit sulfur dioxide held by the owners or operators of the unit or the designated representative of the owners or operators.

(2) Exceedences of applicable emission rates.

(3) The use of any allowance prior to the year for which it was allocated.

(4) Contravention of any other provision of the permit.

22.108(8) Severability clause. The permit shall contain a severability clause to ensure the continued validity of the various permit requirements in the event of a challenge to any portions of the permit.

22.108(9) Other provisions. The Title V permit shall contain provisions stating the following:

a. The permittee must comply with all conditions of the Title V permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for a permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

b. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

c. The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

d. The permit does not convey any property rights of any sort, or any exclusive privilege.

e. The permittee shall furnish to the director, within a reasonable time, any information that the director may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee also shall furnish to the director copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee shall furnish such records directly to the administrator of EPA along with a claim of confidentiality.

22.108(10) Fees. The permit shall include a provision to ensure that the Title V permittee pays fees to the director pursuant to rule 567—22.106(455B).

22.108(11) Emissions trading. A provision of the permit shall state that no permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in the permit.

22.108(12) Terms and conditions for reasonably anticipated operating scenarios identified by the source in its application and as approved by the director. Such terms and conditions:

a. Shall require the source, contemporaneously with making a change from one operating scenario to another, to record in a log at the permitted facility a record of the scenario under which it is operating; and

b. Must ensure that the terms and conditions of each such alternative scenario meet all applicable requirements and the requirements of the department's rules.

22.108(13) Terms and conditions, if the permit applicant requests them, for the trading of emissions increases and decreases in the permitted facility, to the extent that the applicable requirements provide for trading such increases and decreases without a case-by-case approval of each emissions trade. Such terms and conditions:

a. Shall include all terms required under subrules 22.108(1) to 22.108(13) and subrule 22.108(15) to determine compliance;

b. Must meet all applicable requirements of the Act and regulations promulgated thereunder and all requirements of this chapter; and

c. May extend the permit shield described in subrule 22.108(18) to all terms and conditions that allow such increases and decreases in emissions.

22.108(14) Federally enforceable requirements.

a. All terms and conditions in a Title V permit, including any provisions designed to limit a source's potential to emit, are enforceable by the administrator and citizens under the Act.

b. Notwithstanding paragraph *"a"* of this subrule, the director shall specifically designate as not being federally enforceable under the Act any terms and conditions included in the permit that are not required under the Act or under any of its applicable requirements. Terms and conditions so designated are not subject to the requirements of 40 CFR 70.7 or 70.8 (as amended through July 21, 1992).

22.108(15) Compliance requirements. All Title V permits shall contain the following elements with respect to compliance:

a. Consistent with the provisions of subrules 22.108(3) to 22.108(5), compliance certification, testing, monitoring, reporting, and record-keeping requirements sufficient to ensure compliance with the terms and conditions of the permit. Any documents, including reports, required by a permit shall contain a certification by a responsible official that meets the requirements of subrule 22.107(4).

b. Inspection and entry provisions which require that, upon presentation of proper credentials, the permittee shall allow the director or the director's authorized representative to:

(1) Enter upon the permittee's premises where a Title V source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

(3) Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

(4) Sample or monitor, at reasonable times, substances or parameters for the purpose of ensuring compliance with the permit or other applicable requirements.

c. A schedule of compliance consistent with subparagraphs 22.105(2)*"h"* and *"j"* and subrule 22.105(3).

d. Progress reports, consistent with an applicable schedule of compliance and with the provisions of paragraphs 22.105(2)*"h"* and *"j,"* to be submitted at least every six months, or more frequently if specified in the applicable requirement or by the department in the permit. Such progress reports shall contain the following:

(1) Dates for achieving the activities, milestones or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance were achieved; and

(2) An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

e. Requirements for compliance certification with terms and conditions contained in the permit, including emission limitations, standards, or work practices. Permits shall include each of the following:

(1) The frequency of submissions of compliance certifications, which shall not be less than annually.

(2) The means to monitor the compliance of the source with its emissions limitations, standards, and work practices, in accordance with the provisions of all applicable department rules.

(3) A requirement that the compliance certification include: the identification of each term or condition of the permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with all applicable department rules; and other facts as the director may require to determine the compliance status of the source.

(4) A requirement that all compliance certifications be submitted to the administrator and the director.

f. Such additional provisions as the director may require.

g. Such additional provisions as may be specified pursuant to Sections 114(a)(3) and 504(b) of the Act.

h. If there is a federal implementation plan applicable to the source, a provision that compliance with the federal implementation plan is required.

22.108(16) Emergency provisions.

a. For the purposes of a Title V permit, an "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

b. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of paragraph 22.108(16)*"c"* are met.

c. Requirements for affirmative defense. The affirmative defense of emergency shall be demonstrated by the source through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements of the permit; and

(4) The permittee submitted notice of the emergency to the director by certified mail within two working days of the time when emission limitations were exceeded due to the emergency. This notice fulfills the requirement of paragraph 22.108(5)*"b."* This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

e. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

22.108(17) Permit reopenings.

a. A Title V permit issued to a major source shall require that revisions be made to incorporate applicable standards and regulations adopted by the administrator pursuant to the Act, provided that:

(1) The reopening and revision on this ground is not required if the permit has a remaining term of less than three years;

(2) The reopening and revision on this ground is not required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions have been extended pursuant to 40 CFR 70.4(b)(10)(i) or (ii) as amended to May 15, 2001; or

(3) The additional applicable requirements are implemented in a general permit that is applicable to the source and the source receives approval for coverage under that general permit.

b. The revisions shall be made as expeditiously as practicable, but not later than 18 months after the promulgation of such standards and regulations. Any permit revision required pursuant to this subrule shall be treated as a permit renewal.

22.108(18) Permit shield.

a. The director may expressly include in a Title V permit a provision stating that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that:

(1) Such applicable requirements are included and are specifically identified in the permit; or

(2) The director, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.

b. A Title V permit that does not expressly state that a permit shield exists shall be presumed not to provide such a shield.

c. A permit shield shall not alter or affect the following:

(1) The provisions of Section 303 of the Act (emergency orders), including the authority of the administrator under that section;

(2) The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Act;

(4) The ability of the department or the administrator to obtain information from the facility pursuant to Section 114 of the Act.

22.108(19) Emission trades. For emission trades at facilities solely for the purpose of complying with a federally enforceable emissions cap that is established in the permit independent of otherwise applicable requirements, permit applications under this provision are required to include proposed replicable procedures and proposed permit terms that ensure the emission trades are quantifiable and enforceable.

567—22.109(455B) General permits.

22.109(1) *Applicability.* The director may issue a general permit for multiple sources that contain a number of operations and processes which emit pollutants with similar characteristics and that have substantially similar requirements regarding emissions, operations, monitoring and record keeping. General permits shall not be issued to Title IV affected sources except as provided in regulations promulgated by the administrator under Title IV of the Act.

22.109(2) *Issuance of general permits.* General permits may be issued by the director and codified in this chapter following notice and opportunity for public participation consistent with the procedures contained in subrule 22.107(6). Public participation shall be provided for a new general permit, for any revision of an existing general permit, and for renewal of an existing general permit. Permit review by the administrator and affected states shall be provided consistent with subrule 22.107(7). Each general

permit shall identify criteria by which sources may qualify to operate under the general permit and shall comply with all requirements applicable to other Title V permits.

22.109(3) *Applications.* Any source that would qualify for a general permit must apply for either (a) coverage under the terms of the general permit or (b) an individual Title V permit. Applications for authority to operate under the terms of a general permit shall be made on the "General Permit Application Form" and shall specify the general permit concerned by citing the subrule containing that general permit. These applications may deviate from the Title V individual permit application but shall include all information necessary to determine qualification for, and to ensure compliance with, the general permit. If a source is later determined not to qualify for the terms and conditions of the general permit, then the source shall be subject to enforcement action for operation without a Title V operating permit.

22.109(4) *General permit content.* A general permit shall include all of the following:

a. The terms and conditions required for all sources authorized to operate under the permit;

b. Emission limitations and standards, including those operational requirements and limitations that ensure compliance with all applicable requirements at the time of the permit issuance;

c. A compliance plan;

d. Monitoring, record keeping, and reporting requirements to ensure compliance with the terms and conditions of the general permit. These requirements shall ensure the use of consistent terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable emissions limitations, standards, and other requirements contained in the general permit;

e. The requirement to submit at least every six months the results of any required monitoring;

f. References to the authority for the term or condition;

g. A provision specifying permit duration as a fixed term not to exceed five years;

h. A severability clause provision pursuant to subrule 22.108(8);

i. A provision for payment of fees pursuant to subrule 22.108(10);

j. A provision for emissions trading pursuant to subrules 22.108(11) and 22.108(13);

k. Other provisions pursuant to subrule 22.108(9);

l. Statement that the Title V permit is to be kept at the site of the source as well as at the corporate offices; and

m. The process for individual sources to apply for coverage under the general permit.

22.109(5) *Action on general permit application.*

a. Once the director has issued a general permit, any source which is a member of the class of sources covered by the general permit may apply to the director for authority to operate under the general permit.

b. Review of a general permit application. The director shall grant the conditions and terms of a general permit to all sources that apply and qualify under the identified criteria.

c. The director may grant a source's request for authorization to operate under a general permit without repeating the public participation procedures followed in subrule 22.109(2). However, such a grant shall not be a final permit action for purposes of judicial review.

22.109(6) *General permit renewal.* The director shall review and may renew general permits every five years. A source's authorization to operate under a general permit shall expire when the general permit expires regardless of when the authorization began during the five-year period.

22.109(7) *Relationship to individual permits.* Any source covered by a general permit may request to be excluded from coverage by applying for an individual Title V permit. Coverage under the general permit shall terminate on the date the individual Title V permit is issued.

22.109(8) *Permit shield for general permit.* Each general permit issued under this chapter shall specifically identify all federal, state, and local air pollution control requirements applicable to the source at the time the permit is issued. The permit shall state that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance. Any permit under this chapter that does not expressly state that a permit shield exists shall be presumed not to provide such a shield. Notwithstanding the above provisions, the source shall be subject to enforcement action for operation without a permit if the source is later determined not to qualify for the conditions and terms of the general permit.

22.109(9) *Revocations of authority to operate.*

a. The director may require any source or a class of sources authorized to operate under a general permit to individually apply for and obtain a Title V permit at any time if:

(1) The source is not in compliance with the terms and conditions of the general permit;

(2) The director has determined that the emissions from the source or class of sources is contributing significantly to ambient air quality standard violations and that these emissions are not adequately addressed by the terms and conditions of the general permit; or

(3) The director has information which indicates that the cumulative effects on human health and the environment from the sources covered under the general permit are unacceptable.

b. The director shall provide written notice to all sources operating under that general permit of the proposed revocation of that general permit. Such notice shall include an explanation of the basis for the proposed action.

567—22.110(455B) Changes allowed without a Title V permit revision (off-permit revisions).

22.110(1) A source with a Title V permit may make Section 502(b)(10) changes to the permitted installation/facility without a Title V permit revision if:

a. The changes are not major modifications under any provision of any program required by Section 110 of the Act, modifications under Section 111 of the Act, modifications under Section 112 of the Act, or major modifications of this chapter;

b. The changes do not exceed the emissions allowable under the permit (whether expressed therein as a rate of emissions or in terms of total emissions);

c. The changes are not modifications under any provision of Title I of the Act and the changes do not exceed the emissions allowable under the permit (whether expressed therein as a rate of emissions or in terms of total emissions);

d. The changes are not subject to any requirement under Title IV of the Act (revisions affecting Title IV permitting are addressed in rules 567—22.140(455B) through 567—22.144(455B));

e. The changes comply with all applicable requirements; and

f. For each such change, the permitted source provides to the department and the administrator by certified mail, at least 30 days in advance of the proposed change, a written notification, including the following, which shall be attached to the permit by the source, the department, and the administrator:

(1) A brief description of the change within the permitted facility,

(2) The date on which the change will occur,

(3) Any change in emission as a result of the change,

(4) The pollutants emitted subject to the emissions trade,

(5) If the emissions trading provisions of the state implementation plan are invoked, then the Title V permit requirements with which the source shall comply; a description of how the emission increases and decreases will comply with the terms and conditions of the Title V permit;

(6) A description of the trading of emissions increases and decreases for the purpose of complying with a federally enforceable emissions cap as specified in and in compliance with the Title V permit; and

(7) Any permit term or condition no longer applicable as a result of the change.

22.110(2) Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements.

22.110(3) Notwithstanding any other part of this rule, the director may, upon review of a notice, require a stationary source to apply for a Title V permit if the change does not meet the requirements of subrule 22.110(1).

22.110(4) The permit shield provided in subrule 22.108(18) shall not apply to any change made pursuant to this rule. Compliance with the permit requirements that the source will meet using the emissions trade shall be determined according to requirements of the state implementation plan authorizing the emissions trade.

567—22.111(455B) Administrative amendments to Title V permits.

22.111(1) An administrative permit amendment is a permit revision that does any of the following:

a. Corrects typographical errors;

b. Identifies a change in the name, address, or telephone number of any person identified in the permit, or provides a similar minor administrative change at the source;

c. Requires more frequent monitoring or reporting by the permittee; or

d. Allows for a change in ownership or operational control of a source where the director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the director.

22.111(2) Administrative permit amendments to portions of permits containing provisions pursuant to Title IV of the Act shall be governed by regulations promulgated by the administrator under Title IV of the Act.

22.111(3) The director shall take no more than 60 days from receipt of a request for an administrative permit amendment to take final action on such request, and may incorporate such changes without providing notice to the public or affected states provided that the director designates any such permit revisions as having been made pursuant to this rule.

22.111(4) The director shall submit to the administrator a copy of each Title V permit revised under this rule.

22.111(5) The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request.

567—22.112(455B) Minor Title V permit modifications.

22.112(1) Minor Title V permit modification procedures may be used only for those permit modifications that satisfy all of the following:

a. Do not violate any applicable requirement;

b. Do not involve significant changes to existing monitoring, reporting, or record-keeping requirements in the Title V permit;

c. Do not require or change a case-by-case determination of an emission limitation or other standard, or an increment analysis;

d. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed in order to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include any federally enforceable emissions caps which the source would assume to avoid classification as a modification under any provision of Title I of the Act; and an alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the Act;

e. Are not modifications under any provision of Title I of the Act; and

f. Are not required to be processed as a significant modification under rule 567—22.113(455B).

22.112(2) An application for minor permit revision shall be on the minor Title V modification application form and shall include at least the following:

a. A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;

b. The source's suggested draft permit;

c. Certification by a responsible official, pursuant to subrule 22.107(4), that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and

d. Completed forms to enable the department to notify the administrator and affected states as required by subrule 22.107(7).

22.112(3) The department shall notify the administrator and affected states within five working days of receipt of a complete permit modification application. Notification shall be in accordance with the provisions of subrule 22.107(7). The department shall promptly send to the administrator any notification required by subrule 22.107(7).

22.112(4) The director shall not issue a final Title V permit modification until after the administrator's 45-day review period or until the administrator has notified the director that the administrator will not object to issuance of the Title V permit modification, whichever is first. Within 90 days of the director's receipt of an application under the minor permit modification procedures, or 15 days after the end of the administrator's 45-day review period provided for in subrule 22.107(7), whichever is later, the director shall:

a. Issue the permit modification as proposed;

b. Deny the permit modification application;

c. Determine that the requested permit modification does not meet the minor permit modification criteria and should be reviewed under the significant modification procedures; or

d. Revise the draft permit modification and transmit to the administrator the proposed permit modification, as required by subrule 22.107(7).

22.112(5) Source's ability to make change. The source may make the change proposed in its minor permit modification application immediately after it files the application. After the source makes the change allowed by the preceding sentence, and until the director takes any of the actions specified in paragraphs 22.112(4)*"a"* to *"c,"* the source must comply with both the applicable requirements governing the change and the proposed permit terms and conditions. During this time, the source need not comply with the existing permit terms and conditions it seeks to modify. However, if the source fails to comply with its proposed permit terms and conditions during this time period, the existing permit terms and conditions it seeks to modify may be enforced against it.

22.112(6) Permit shield. The permit shield under subrule 22.108(18) shall not extend to minor Title V permit revisions.

567—22.113(455B) Significant Title V permit modifications.

22.113(1) Significant Title V modification procedures shall be used for applications requesting Title V permit modifications that do not qualify as minor Title V modifications or as administrative amendments. These include, but are not limited to, all significant changes in monitoring permit terms, every relaxation of reporting or record-keeping permit terms, and any change in the method of measuring compliance with existing requirements.

22.113(2) Significant Title V permit modifications shall meet all requirements of this chapter, including those for applications, public participation, review by affected states, and review by the administrator, as those requirements that apply to Title V permit issuance and renewal.

22.113(3) Unless the director determines otherwise, review of significant Title V permit modification applications shall be completed within nine months of receipt of a complete application.

22.113(4) For a change that is subject to the requirements for a significant permit modification (see rule 567—22.113(455B)), the permittee shall submit to the department an application for a significant permit modification not later than three months after commencing operation of the changed source unless the existing Title V permit would prohibit such construction or change in operation, in which event the operation of the changed source may not commence until the department revises the permit.

567—22.114(455B) Title V permit reopenings.

22.114(1) Each issued Title V permit shall include provisions specifying the conditions under which the permit may be reopened and revised prior to the expiration of the permit. A permit shall be reopened and revised under any of the following circumstances:

a. The department receives notice that the administrator has granted a petition for disapproval of a permit pursuant to 40 CFR 70.8(d) as amended to July 21, 1992, provided that the reopening may be stayed pending judicial review of that determination;

b. The department or the administrator determines that the Title V permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the Title V permit;

c. Additional applicable requirements under the Act become applicable to a Title V source, provided that the reopening on this ground is not required if the permit has a remaining term of less

than three years, the effective date of the requirement is later than the date on which the permit is due to expire, or the additional applicable requirements are implemented in a general permit that is applicable to the source and the source receives approval for coverage under that general permit. Such a reopening shall be complete not later than 18 months after promulgation of the applicable requirement.

d. Additional requirements, including excess emissions requirements, become applicable to a Title IV affected source under the acid rain program. Upon approval by the administrator, excess emissions offset plans shall be deemed to be incorporated into the permit.

e. The department or the administrator determines that the permit must be revised or revoked to ensure compliance by the source with the applicable requirements.

22.114(2) Proceedings to reopen and reissue a Title V permit shall follow the procedures applicable to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists.

22.114(3) A notice of intent shall be provided to the Title V source at least 30 days in advance of the date the permit is to be reopened, except that the director may provide a shorter time period in the case of an emergency.

22.114(4) Within 90 days of receipt of a notice from the administrator that cause exists to reopen a permit, the director shall forward to the administrator and the source a proposed determination of termination, modification, revocation, or reissuance of the permit, as appropriate.

567—22.115(455B) Suspension, termination, and revocation of Title V permits.

22.115(1) Permits may be terminated, modified, revoked, or reissued for cause. The following examples shall be considered cause for the suspension, modification, revocation, or reissuance of a Title V permit:

a. The director has reasonable cause to believe that the permit was obtained by fraud or misrepresentation.

b. The person applying for the permit failed to disclose a material fact required by the permit application form or the rules applicable to the permit, of which the applicant had or should have had knowledge at the time the application was submitted.

c. The terms and conditions of the permit have been or are being violated.

d. The permittee has failed to pay the Title V permit fees.

e. The permittee has failed to pay an administrative, civil or criminal penalty imposed for violations of the permit.

22.115(2) If the director suspends, terminates or revokes a Title V permit under this rule, the notice of such action shall be served on the applicant or permittee by certified mail, return receipt requested. The notice shall include a statement detailing the grounds for the action sought, and the proceeding shall in all other respects comply with the requirements of rule 561—7.16(17A,455A).

567—22.116(455B) Title V permit renewals.

22.116(1) An application for Title V permit renewal shall be subject to the same procedural requirements that apply to initial permit issuance, including those for public participation and review by the administrator and affected states.

22.116(2) Except as provided in rule 567—22.104(455B), permit expiration terminates a source's right to operate unless a timely and complete application for renewal has been submitted in accordance with rule 567—22.105(455B).

567—22.117 to **22.119** Reserved.

567—22.120(455B) Acid rain program—definitions. The terms used in rules 567—22.120(455B) through 567—22.147(455B) shall have the meanings set forth in Title IV of the Clean Air Act, 42 U.S.C. 7401, et seq., as amended through November 15, 1990, and in this rule. The definitions set forth in 40 CFR Part 72 as amended through January 24, 2008, and 40 CFR Part 76 as amended through October 15, 1999, are adopted by reference.

"40 CFR Part 72," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 72, or the cited provision therein, as amended through January 24, 2008.

"40 CFR Part 73," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 73, or the cited provision therein, as amended through April 28, 2006.

"40 CFR Part 74," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 74, or the cited provision therein, as amended through April 28, 2006.

"40 CFR Part 75," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 75, or the cited provision therein, as amended through February 13, 2008.

"40 CFR Part 76," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 76, or the cited provision therein, as amended through October 15, 1999.

"40 CFR Part 77," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 77, or the cited provision therein, as amended through May 12, 2005.

"40 CFR Part 78," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 78, or the cited provision therein, as amended through April 28, 2006.

"Acid rain permit" means the legally binding written document, or portion of such document, issued by the department (following an opportunity for appeal as set forth in 561—Chapter 7, as adopted by reference at 567—Chapter 7), including any permit revisions, specifying the acid rain program requirements applicable to an affected source, to each affected unit at an affected source, and to the owner and operators and the designated representative of the affected source or the affected unit.

"Department" means the department of natural resources and is the state acid rain permitting authority.

"Draft acid rain permit" means the version of the acid rain permit, or the acid rain portion of a Title V operating permit, that the department offers for public comment.

"Permit revision" means a permit modification, fast-track modification, administrative permit amendment, or automatic permit amendment, as provided in rules 567—22.140(455B) through 567—22.144(455B).

"Proposed acid rain permit" means the version of the acid rain permit that the department submits to the Administrator after the public comment period, but prior to completion of the EPA permit review under 40 CFR 70.8(c) as amended through July 21, 1992.

"Title V operating permit" means a permit issued under rules 567—22.100(455B) through 567—22.116(455B) implementing Title V of the Act.

"Ton" or *"tonnage"* means any short ton (i.e., 2,000 pounds). For purposes of determining compliance with the acid rain emissions limitations and reduction requirements, total tons for a year shall be calculated as the sum of all recorded hourly emissions (or the tonnage equivalent of the recorded hourly emissions) in accordance with rule 567—25.2(455B), with any remaining fraction of a ton equal to or greater than 0.50 ton deemed to equal one ton and any fraction of a ton less than 0.50 ton deemed not equal to a ton.

567—22.121(455B) Measurements, abbreviations, and acronyms. Measurements, abbreviations, and acronyms used in rules 567—22.120(455B) to 567—22.147(455B) are defined as follows:

"ASTM" means American Society for Testing and Materials.

"Btu" means British thermal unit.

"CFR" means Code of Federal Regulations.

"DOE" means Department of Energy.

"EPA" means Environmental Protection Agency.

"mmBtu" means million Btu.

"MWe" means megawatt electrical.

"SO_2" means sulfur dioxide.

567—22.122(455B) Applicability.

22.122(1) Each of the following units shall be an affected unit, and any source that includes such a unit shall be an affected source, subject to the requirements of the acid rain program:

a. A unit listed in Table 1 of 40 CFR 73.10(a).

b. An existing unit that is identified in Table 2 or 3 of 40 CFR 73.10, and any other existing utility unit, except a unit under subrule 22.122(2).

c. A utility unit, except a unit under subrule 22.122(2), that:

(1) Is a new unit;

(2) Did not serve a generator with a nameplate capacity greater than 25 MWe on November 15, 1990, but serves such a generator after November 15, 1990;

(3) Was a simple combustion turbine on November 15, 1990, but adds or uses auxiliary firing after November 15, 1990;

(4) Was an exempt cogeneration facility under paragraph 22.122(2)*"d"* but during any three-calendar-year period after November 15, 1990, sold, to a utility power distribution system, an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs electric output, on a gross basis;

(5) Was an exempt qualifying facility under paragraph 22.122(2)*"e"* but, at any time after the later of November 15, 1990, or the date the facility commences commercial operation, fails to meet the definition of qualifying facility;

(6) Was an exempt independent power production facility under paragraph 22.122(2)*"f"* but, at any time after the later of November 15, 1990, or the date the facility commences commercial operation, fails to meet the definition of independent power production facility; or

(7) Was an exempt solid waste incinerator under paragraph 22.122(2)*"g"* but during any three-calendar-year period after November 15, 1990, consumes 20 percent or more (on a Btu basis) fossil fuel.

(8) Is a coal-fired substitution unit that is designated in a substitution plan that was not approved and not active as of January 1, 1995, or is a coal-fired compensating unit.

22.122(2) The following types of units are not affected units subject to the requirements of the acid rain program:

a. A simple combustion turbine that commenced operation before November 15, 1990.

b. Any unit that commenced commercial operation before November 15, 1990, and that did not, as of November 15, 1990, and does not currently, serve a generator with a nameplate capacity of greater than 25 MWe.

c. Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale.

d. A cogeneration facility which:

(1) For a unit that commenced construction on or prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 MWe-hrs actual electric output on an annual basis to any utility power distribution system for sale (on a gross basis). If the purpose of construction is not known, it will be presumed to be consistent with the actual operation from 1985 through 1987. However, if in any three-calendar-year period after November 15, 1990, such unit sells to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs actual electric output (on a gross basis), that unit shall be an affected unit, subject to the requirements of the acid rain program; or

(2) For units that commenced construction after November 15, 1990, supplies equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 MWe-hrs actual electric output on an annual basis to any utility power distribution system for sale (on a gross basis). However, if in any three-calendar-year period after November 15, 1990, such unit sells to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs actual electric output (on a gross basis), that unit shall be an affected unit, subject to the requirements of the acid rain program.

e. A qualifying facility that:

(1) Has, as of November 15, 1990, one or more qualifying power purchase commitments to sell at least 15 percent of its total planned net output capacity; and

(2) Consists of one or more units designated by the owner or operator with total installed net output capacity not exceeding 130 percent of the total planned net output capacity. If the emissions rates of the units are not the same, the administrator may exercise discretion to designate which units are exempt.

f. An independent power production facility that:

(1) Has, as of November 15, 1990, one or more qualifying power purchase commitments to sell at least 15 percent of its total planned net output capacity; and

(2) Consists of one or more units designated by the owner or operator with total installed net output capacity not exceeding 130 percent of its total planned net output capacity. If the emissions rates of the units are not the same, the administrator may exercise discretion to designate which units are exempt.

g. A solid waste incinerator, if more than 80 percent (on a Btu basis) of the annual fuel consumed at such incinerator is other than fossil fuels. For a solid waste incinerator which began operation before January 1, 1985, the average annual fuel consumption of nonfossil fuels for calendar years 1985 through 1987 must be greater than 80 percent for such an incinerator to be exempt. For a solid waste incinerator which began operation after January 1, 1985, the average annual fuel consumption of nonfossil fuels for the first three years of operation must be greater than 80 percent for such an incinerator to be exempt. If, during any three-calendar-year period after November 15, 1990, such incinerator consumes 20 percent or more (on a Btu basis) fossil fuel, such incinerator will be an affected source under the acid rain program.

h. A nonutility unit.

22.122(3) A certifying official of any unit may petition the administrator for a determination of applicability under 40 CFR 72.6(c). The administrator's determination of applicability shall be binding upon the department, unless the petition is found to have contained significant errors or omissions.

567—22.123(455B) Acid rain exemptions.

22.123(1) *New unit exemption.* The new unit exemption, as specified in 40 CFR §72.7, except for 40 CFR §72.7(c)(1)(i), is adopted by reference. This exemption applies to new utility units.

22.123(2) *Retired unit exemption.* The retired unit exemption, as specified in 40 CFR §72.8, is adopted by reference. This exemption applies to any affected unit that is permanently retired.

22.123(3) *Industrial utility-unit exemption.* The industrial utility-unit exemption, as specified in 40 CFR §72.14, is adopted by reference. This exemption applies to any noncogeneration utility unit.

567—22.124(455B) Retired units exemption. Rescinded IAB 9/9/98, effective 10/14/98.

567—22.125(455B) Standard requirements.

22.125(1) *Permit requirements.*

a. The designated representative of each affected source and each affected unit at the source shall:

(1) Submit a complete acid rain permit application under this chapter in accordance with the deadlines specified in rule 567—22.128(455B);

(2) Submit in a timely manner any supplemental information that the department determines is necessary in order to review an acid rain permit application and issue or deny an acid rain permit.

b. The owners and operators of each affected source and each affected unit at the source shall:

(1) Operate the unit in compliance with a complete acid rain permit application or a superseding acid rain permit issued by the department; and

(2) Have an acid rain permit.

22.125(2) *Monitoring requirements.*

a. The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in rule 567—25.2(455B) and Section 407 of the Act and regulations implementing Section 407 of the Act.

b. The emissions measurements recorded and reported in accordance with rule 567—25.2(455B) and Section 407 of the Act and regulations implementing Section 407 of the Act shall be used to

determine compliance by the unit with the acid rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the acid rain program.

c. The requirements of rule 567—25.2(455B) and regulations implementing Section 407 of the Act shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

22.125(3) *Sulfur dioxide requirements.*

a. The owners and operators of each source and each affected unit at the source shall:

(1) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and

(2) Comply with the applicable acid rain emissions limitation for sulfur dioxide.

b. Each ton of sulfur dioxide emitted in excess of the acid rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.

c. An affected unit shall be subject to the requirements under paragraph 22.125(3)*"a"* as follows: starting January 1, 2000, an affected unit under paragraph 22.122(1)*"b"*; or starting on the later of January 1, 2000, or the deadline for monitor certification under rule 567—25.2(455B), an affected unit under paragraph 22.122(1)*"c."*

d. Allowances shall be held in, deducted from, or transferred among allowance tracking system accounts in accordance with the acid rain program.

e. An allowance shall not be deducted, in order to comply with the requirements under paragraph 22.125(3)*"a,"* prior to the calendar year for which the allowance was allocated.

f. An allowance allocated by the administrator under the acid rain program is a limited authorization to emit sulfur dioxide in accordance with the acid rain program. No provision of the acid rain program, the acid rain permit application, the acid rain permit, or the written exemption under rules 567—22.123(455B) and 567—22.124(455B) and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.

g. An allowance allocated by the administrator under the acid rain program does not constitute a property right.

22.125(4) *Nitrogen oxides requirements.* The owners and operators of the source and each affected unit at the source shall comply with the applicable acid rain emission limitation for nitrogen oxides, as specified in 40 CFR Sections 76.5 and 76.7; 76.6; and 76.8, 76.11, 76.12, and 76.15; or by alternative emission limitations provided for by 40 CFR 76.10, as long as the alternative emission limitation has been petitioned and demonstrated according to 40 CFR 76.14 and approved by the department.

22.125(5) *Excess emissions requirements.*

a. The designated representative of an affected unit that has excess emissions in any calendar year shall submit a proposed offset plan to the administrator, as required under 40 CFR Part 77, and submit a copy to the department.

b. The owners and operators of an affected unit that has excess emissions in any calendar year shall:

(1) Pay to the administrator without demand the penalty required, and pay to the administrator upon demand the interest on that penalty, as required by 40 CFR Part 77; and

(2) Comply with the terms of an approved offset plan, as required by 40 CFR Part 77.

22.125(6) *Record-keeping and reporting requirements.*

a. Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the administrator or the department.

(1) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall

be retained on site at the source beyond such five-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative.

(2) All emissions monitoring information, in accordance with rule 567—25.2(455B).

(3) Copies of all reports, compliance certifications, and other submissions and all records made or required under the acid rain program.

(4) Copies of all documents used to complete an acid rain permit application and any other submission under the acid rain program or to demonstrate compliance with the requirements of the acid rain program.

b. The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the acid rain program, including those under rules 567—22.146(455B) and 567—22.147(455B) and rule 567—25.2(455B).

22.125(7) *Liability.*

a. Any person who knowingly violates any requirement or prohibition of the acid rain program, a complete acid rain permit application, an acid rain permit, or a written exemption under rules 567—22.123(455B) or 567—22.124(455B), including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement by the administrator pursuant to Section 113(c) of the Act and by the department pursuant to Iowa Code section 455B.146.

b. Any person who knowingly makes a false, material statement in any record, submission, or report under the acid rain program shall be subject to criminal enforcement by the administrator pursuant to Section 113(c) of the Act and 18 U.S.C. 1001 and by the department pursuant to Iowa Code section 455B.146.

c. No permit revision shall excuse any violation of the requirements of the acid rain program that occurs prior to the date that the revision takes effect.

d. Each affected source and each affected unit shall meet the requirements of the acid rain program.

e. Any provision of the acid rain program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.

f. Any provision of the acid rain program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit. Except as provided under rule 567—22.132(455B) (Phase II repowering extension plans), Section 407 of the Act and regulations implementing Section 407 of the Act, and except with regard to the requirements applicable to units with a common stack under rule 567—25.2(455B), the owners and operators and the designated representative of one affected unit shall not be liable for any violation by any other affected unit of which they are not owners or operators or the designated representative and that is located at a source of which they are not owners or operators or the designated representative.

g. Each violation of a provision of rules 567—22.120(455B) to 567—22.146(455B) and 40 CFR Parts 72, 73, 75, 76, 77, and 78 and regulations implementing Sections 407 and 410 of the Act by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

22.125(8) *Effect on other authorities.* No provision of the acid rain program, an acid rain permit application, an acid rain permit, or a written exemption under rule 567—22.123(455B) or 567—22.124(455B) shall be construed as:

a. Except as expressly provided in Title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of Title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;

b. Limiting the number of allowances a unit can hold; provided that the number of allowances held by the unit shall not affect the source's obligation to comply with any other provisions of the Act;

c. Requiring a change of any kind in any state law regulating electric utility rates and charges, affecting any state law regarding such state rule, or limiting such state rule, including any prudence review requirements under such state law;

d. Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or

e. Interfering with or impairing any program for competitive bidding for power supply in a state in which such program is established.

567—22.126(455B) Designated representative—submissions.

22.126(1) The designated representative shall submit a certificate of representation, and any superseding certificate of representation, to the administrator in accordance with Subpart B of 40 CFR Part 72, and, concurrently, shall submit a copy to the department. Whenever the term "designated representative" is used in this rule, the term shall be construed to include the alternate designated representative.

22.126(2) Each submission under the acid rain program shall be submitted, signed, and certified by the designated representative for all sources on behalf of which the submission is made.

22.126(3) In each submission under the acid rain program, the designated representative shall certify by signature:

a. The following statement, which shall be included verbatim in such submission: "I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made."

b. The following statement, which shall be included verbatim in such submission: "I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

22.126(4) The department will accept or act on a submission made on behalf of owners or operators of an affected source and an affected unit only if the submission has been made, signed, and certified in accordance with subrules 22.126(2) and 22.126(3).

22.126(5) The designated representative of a source shall serve notice on each owner and operator of the source and of an affected unit at the source:

a. By the date of submission, of any acid rain program submissions by the designated representative;

b. Within ten business days of receipt of a determination, of any written determination by the administrator or the department; and

c. Provided that the submission or determination covers the source or the unit.

22.126(6) The designated representative of a source shall provide each owner and operator of an affected unit at the source a copy of any submission or determination under subrule 22.126(5), unless the owner or operator expressly waives the right to receive such a copy.

567—22.127(455B) Designated representative—objections.

22.127(1) Except as provided in 40 CFR 72.23, no objection or other communication submitted to the administrator or the department concerning the authorization, or any submission, action or inaction, of the designated representative shall affect any submission, action, or inaction of the designated representative, or the finality of any decision by the department, under the acid rain program. In the event of such communication, the department is not required to stay any submission or the effect of any action or inaction under the acid rain program.

22.127(2) The department will not adjudicate any private legal dispute concerning the authorization or any submission, action, or inaction of any designated representative, including private legal disputes concerning the proceeds of allowance transfers.

567—22.128(455B) Acid rain applications—requirement to apply.

22.128(1) *Duty to apply.* The designated representative of any source with an affected unit shall submit a complete acid rain permit application by the applicable deadline in subrules 22.128(2) and 22.128(3), and the owners and operators of such source and any affected unit at the source shall not operate the source or unit without a permit that states its acid rain program requirements.

22.128(2) *Deadlines.*

a. For any source with an existing unit described under paragraph 22.122(1)*"b,"* the designated representative shall submit a complete acid rain permit application governing such unit to the department on or before January 1, 1996.

b. For any source with a new unit described under subparagraph 22.122(1)*"c"*(1), the designated representative shall submit a complete acid rain permit application governing such unit to the department at least 24 months before the later of January 1, 2000, or the date on which the unit commences operation.

c. For any source with a unit described under subparagraph 22.122(1)*"c"*(2), the designated representative shall submit a complete acid rain permit application governing such unit to the department at least 24 months before the later of January 1, 2000, or the date on which the unit begins to serve a generator with a nameplate capacity greater than 25 MWe.

d. For any source with a unit described under subparagraph 22.122(1)*"c"*(3), the designated representative shall submit a complete acid rain permit application governing such unit to the department at least 24 months before the later of January 1, 2000, or the date on which the auxiliary firing commences operation.

e. For any source with a unit described under subparagraph 22.122(1)*"c"*(4), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the three-calendar-year period in which the unit sold to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs actual electric output (on a gross basis).

f. For any source with a unit described under subparagraph 22.122(1)*"c"*(5), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the calendar year in which the facility fails to meet the definition of qualifying facility.

g. For any source with a unit described under subparagraph 22.122(1)*"c"*(6), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the calendar year in which the facility fails to meet the definition of an independent power production facility.

h. For any source with a unit described under subparagraph 22.122(1)*"c"*(7), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the three-calendar-year period in which the incinerator consumed 20 percent or more fossil fuel (on a Btu basis).

i. For a Phase II unit with a Group 1 or a Group 2 boiler, the designated representative shall submit a complete permit application and compliance plan for NO_x emissions to the department no later than January 1, 1998.

22.128(3) *Duty to reapply.* The designated representative shall submit a complete acid rain permit application for each source with an affected unit at least six months prior to the expiration of an existing acid rain permit governing the unit.

22.128(4) *Submission of copies.* The original and three copies of all permit applications shall be presented or mailed to the Air Quality Bureau, Iowa Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09]

567—22.129(455B) Information requirements for acid rain permit applications. A complete acid rain permit application shall be submitted on a form approved by the department, which includes the following elements:

22.129(1) Identification of the affected source for which the permit application is submitted;

22.129(2) Identification of each affected unit at the source for which the permit application is submitted;

22.129(3) A complete compliance plan for each unit, in accordance with rules 567—22.131(455B) and 567—22.132(455B);

22.129(4) The standard requirements under rule 567—22.125(455B); and

22.129(5) If the unit is a new unit, the date that the unit has commenced or will commence operation and the deadline for monitor certification.

567—22.130(455B) Acid rain permit application shield and binding effect of permit application.

22.130(1) Once a designated representative submits a timely and complete acid rain permit application, the owners and operators of the affected source and the affected units covered by the permit application shall be deemed in compliance with the requirement to have an acid rain permit under paragraph 22.125(1)*"b"* and subrule 22.128(1); provided that any delay in issuing an acid rain permit is not caused by the failure of the designated representative to submit in a complete and timely fashion supplemental information, as required by the department, necessary to issue a permit.

22.130(2) Prior to the date on which an acid rain permit is issued as a final agency action subject to judicial review, an affected unit governed by and operated in accordance with the terms and requirements of a timely and complete acid rain permit application shall be deemed to be operating in compliance with the acid rain program.

22.130(3) A complete acid rain permit application shall be binding on the owners and operators and the designated representative of the affected source and the affected units covered by the permit application and shall be enforceable as an acid rain permit from the date of submission of the permit application until the issuance or denial of such permit as a final agency action subject to judicial review.

567—22.131(455B) Acid rain compliance plan and compliance options—general.

22.131(1) For each affected unit included in an acid rain permit application, a complete compliance plan shall include:

a. For sulfur dioxide emissions, a certification that, as of the allowance transfer deadline, the designated representative will hold allowances in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide from the unit. The compliance plan may also specify, in accordance with rule 567—22.131(455B), one or more of the acid rain compliance options.

b. For nitrogen oxides emissions, a certification that the unit will comply with the applicable limitation established by subrule 22.125(4) or shall specify one or more acid rain compliance options, in accordance with Section 407 of the Act, and 40 CFR Section 76.9.

22.131(2) The compliance plan may include a multiunit compliance option under rule 567—22.132(455B) or Section 407 of the Act or regulations implementing Section 407.

a. A plan for a compliance option that includes units at more than one affected source shall be complete only if:

(1) Such plan is signed and certified by the designated representative for each source with an affected unit governed by such plan; and

(2) A complete permit application is submitted covering each unit governed by such plan.

b. The department's approval of a plan under paragraph 22.131(2)*"a"* that includes units in more than one state shall be final only after every permitting authority with jurisdiction over any such unit has approved the plan with the same modifications or conditions, if any.

22.131(3) Conditional approval. In the compliance plan, the designated representative of an affected unit may propose, in accordance with rules 567—22.131(455B) and 567—22.132(455B), any acid rain compliance option for conditional approval; provided that an acid rain compliance option under Section 407 of the Act may be conditionally proposed only to the extent provided in regulations implementing Section 407 of the Act.

a. To activate a conditionally approved acid rain compliance option, the designated representative shall notify the department in writing that the conditionally approved compliance option will actually be pursued beginning January 1 of a specified year. If the conditionally approved compliance option includes a plan described in paragraph 22.131(2)*"a,"* the designated representative of each source governed by the plan shall sign and certify the notification. Such notification shall be subject to the limitations on activation under rule 567—22.132(455B) and regulations implementing Section 407 of the Act.

b. The notification under paragraph 22.131(3)*"a"* shall specify the first calendar year and the last calendar year for which the conditionally approved acid rain compliance option is to be activated. A conditionally approved compliance option shall be activated, if at all, before the date of any enforceable milestone applicable to the compliance option. The date of activation of the compliance option shall not be a defense against failure to meet the requirements applicable to that compliance option during each calendar year for which the compliance option is activated.

c. Upon submission of a notification meeting the requirements of paragraphs 22.131(3)*"a"* and *"b,"* the conditionally approved acid rain compliance option becomes binding on the owners and operators and the designated representative of any unit governed by the conditionally approved compliance option.

d. A notification meeting the requirements of paragraphs 22.131(3)*"a"* and *"b"* will revise the unit's permit in accordance with rule 567—22.143(455B) (administrative permit amendment).

22.131(4) Termination of compliance option.

a. The designated representative for a unit may terminate an acid rain compliance option by notifying the department in writing that an approved compliance option will be terminated beginning January 1 of a specified year. Such notification shall be subject to the limitations on termination under rule 567—22.132(455B) and regulations implementing Section 407 of the Act. If the compliance option includes a plan described in paragraph 22.131(2)*"a,"* the designated representative for each source governed by the plan shall sign and certify the notification.

b. The notification under paragraph 22.131(4)*"a"* shall specify the calendar year for which the termination will take effect.

c. Upon submission of a notification meeting the requirements of paragraphs 22.131(4)*"a"* and *"b,"* the termination becomes binding on the owners and operators and the designated representative of any unit governed by the acid rain compliance option to be terminated.

d. A notification meeting the requirements of paragraphs 22.131(4)*"a"* and *"b"* will revise the unit's permit in accordance with rule 567—22.143(455B) (administrative permit amendment).

567—22.132(455B) Repowering extensions. Rescinded IAB 4/8/98, effective 5/13/98.

567—22.133(455B) Acid rain permit contents—general.

22.133(1) Each acid rain permit (including any draft acid rain permit) will contain the following elements:

a. All elements required for a complete acid rain permit application under rule 567—22.129(455B), as approved or adjusted by the department;

b. The applicable acid rain emissions limitation for sulfur dioxide; and

c. The applicable acid rain emissions limitation for nitrogen oxides.

22.133(2) Each acid rain permit is deemed to incorporate the definitions of terms under rule 567—22.120(455B).

567—22.134(455B) Acid rain permit shield. Each affected unit operated in accordance with the acid rain permit that governs the unit and that was issued in compliance with Title IV of the Act, as provided in rules 567—22.120(455B) to 567—22.146(455B), rule 567—25.2(455B), or 40 CFR Parts 72, 73, 75, 76, 77, and 78, and the regulations implementing Section 407 of the Act, shall be deemed to be operating in compliance with the acid rain program, except as provided in paragraph 22.125(7)*"f."*

567—22.135(455B) Acid rain permit issuance procedures—general. The department will issue or deny all acid rain permits in accordance with rules 567—22.100(455B) to 567—22.116(455B), including the completeness determination, draft permit, administrative record, statement of basis, public notice and comment period, public hearing, proposed permit, permit issuance, permit revision, and appeal procedures as amended by rules 567—22.135(455B) to 567—22.145(455B).

567—22.136(455B) Acid rain permit issuance procedures—completeness. The department will submit a written notice of application completeness to the administrator within ten working days following a determination by the department that the acid rain permit application is complete.

567—22.137(455B) Acid rain permit issuance procedures—statement of basis.

22.137(1) The statement of basis will briefly set forth significant factual, legal, and policy considerations on which the department relied in issuing or denying the draft acid rain permit.

22.137(2) The statement of basis will include the reasons, and supporting authority, for approval or disapproval of any compliance options requested in the permit application, including references to applicable statutory or regulatory provisions and to the administrative record.

22.137(3) The department will submit to the administrator a copy of the draft acid rain permit and the statement of basis and all other relevant portions of the Title V operating permit that may affect the draft acid rain permit.

567—22.138(455B) Issuance of acid rain permits.

22.138(1) Proposed permit. After the close of the public comment and EPA 45-day review period (pursuant to subrules 22.107(6) and 22.107(7)), the department will address any objections by the administrator, incorporate all necessary changes and issue or deny the acid rain permit.

22.138(2) The department will submit the proposed acid rain permit or denial of a proposed acid rain permit to the administrator in accordance with rules 567—22.100(455B) to 567—22.116(455B), the provisions of which shall be treated as applying to the issuance or denial of a proposed acid rain permit.

22.138(3) Following the administrator's review of the proposed acid rain permit or denial of a proposed acid rain permit, the department, or under 40 CFR 70.8(c) as amended to July 21, 1992, the administrator, will incorporate any required changes and issue or deny the acid rain permit in accordance with rules 567—22.133(455B) and 567—22.134(455B).

22.138(4) No acid rain permit including a draft or proposed permit shall be issued unless the administrator has received a certificate of representation for the designated representative of the source in accordance with Subpart B of 40 CFR Part 72.

22.138(5) Permit issuance deadline and effective date.

a. On or before December 31, 1997, the department will issue an acid rain permit to each affected source whose designated representative submitted a timely and complete acid rain permit application by January 1, 1996, in accordance with rule 567—22.126(455B) and meets the requirements of rules 567—22.135(455B) to 567—22.139(455B) and rules 567—22.100(455B) to 567—22.116(455B).

b. Nitrogen oxides. Not later than January 1, 1999, the department will reopen the acid rain permit to add the acid rain program nitrogen oxides requirements; provided that the designated representative of the affected source submitted a timely and complete acid rain permit application for nitrogen oxides in accordance with rule 567—22.126(455B). Such reopening shall not affect the term of the acid rain portion of a Title V operating permit.

c. Each acid rain permit issued in accordance with paragraph 22.138(5)*"a"* shall take effect by the later of January 1, 2000, or, where the permit governs a unit under paragraph 22.122(1)*"c,"* the deadline for monitor certification under rule 567—25.2(455B).

d. Each acid rain permit shall have a term of five years commencing on its effective date.

e. An acid rain permit shall be binding on any new owner or operator or designated representative of any source or unit governed by the permit.

22.138(6) Each acid rain permit shall contain all applicable acid rain requirements, shall be a portion of the Title V operating permit that is complete and segregable from all other air quality requirements, and shall not incorporate information contained in any other documents, other than documents that are readily available.

22.138(7) Invalidation of the acid rain portion of a Title V operating permit shall not affect the continuing validity of the rest of the Title V operating permit, nor shall invalidation of any other portion of the Title V operating permit affect the continuing validity of the acid rain portion of the permit.

567—22.139(455B) Acid rain permit appeal procedures.

22.139(1) Appeals of the acid rain portion of a Title V operating permit issued by the department that do not challenge or involve decisions or actions of the administrator under 40 CFR Parts 72, 73, 75, 76, 77, and 78 and Sections 407 and 410 of the Act and regulations implementing Sections 407 and 410 shall be conducted according to the procedures in Iowa Code chapter 17A and 561—Chapter 7, as adopted by reference at 567—Chapter 7. Appeals of the acid rain portion of such a permit that challenge or involve such decisions or actions of the administrator shall follow the procedures under 40 CFR Part 78 and Section 307 of the Act. Such decisions or actions include, but are not limited to, allowance allocations, determinations concerning alternative monitoring systems, and determinations of whether a technology is a qualifying repowering technology.

22.139(2) No administrative appeal or judicial appeal of the acid rain portion of a Title V operating permit shall be allowed more than 30 days following respective issuance of the acid rain portion of the permit that is subject to administrative appeal or issuance of the final agency action subject to judicial appeal.

22.139(3) The administrator may intervene as a matter of right in any state administrative appeal of an acid rain permit or denial of an acid rain permit.

22.139(4) No administrative appeal concerning an acid rain requirement shall result in a stay of the following requirements:

a. The allowance allocations for any year during which the appeal proceeding is pending or is being conducted;

b. Any standard requirement under rule 567—22.125(455B);

c. The emissions monitoring and reporting requirements applicable to the affected units at an affected source under rule 567—25.2(455B);

d. Uncontested provisions of the decision on appeal; and

e. The terms of a certificate of representation submitted by a designated representative under Subpart B of 40 CFR Part 72.

22.139(5) The department will serve written notice on the administrator of any state administrative or judicial appeal concerning an acid rain provision of any Title V operating permit or denial of an acid rain portion of any Title V operating permit within 30 days of the filing of the appeal.

22.139(6) The department will serve written notice on the administrator of any determination or order in a state administrative or judicial proceeding that interprets, modifies, voids, or otherwise relates to any portion of an acid rain permit. Following any such determination or order, the administrator will have an opportunity to review and veto the acid rain permit or revoke the permit for cause in accordance with subrules 22.107(7) and 22.107(8).

567—22.140(455B) Permit revisions—general.

22.140(1) Rules 567—22.140(455B) to 567—22.145(455B) shall govern revisions to any acid rain permit issued by the department.

22.140(2) A permit revision may be submitted for approval at any time. No permit revision shall affect the term of the acid rain permit to be revised. No permit revision shall excuse any violation of an acid rain program requirement that occurred prior to the effective date of the revision.

22.140(3) The terms of the acid rain permit shall apply while the permit revision is pending.

22.140(4) Any determination or interpretation by the state (including the department or a state court) modifying or voiding any acid rain permit provision shall be subject to review by the administrator in

accordance with 40 CFR 70.8(c) as amended to July 21, 1992, as applied to permit modifications, unless the determination or interpretation is an administrative amendment approved in accordance with rule 567—22.143(455B).

22.140(5) The standard requirements of rule 567—22.125(455B) shall not be modified or voided by a permit revision.

22.140(6) Any permit revision involving incorporation of a compliance option that was not submitted for approval and comment during the permit issuance process, or involving a change in a compliance option that was previously submitted, shall meet the requirements for applying for such compliance option under rule 567—22.132(455B) and Section 407 of the Act and regulations implementing Section 407 of the Act.

22.140(7) For permit revisions not described in rules 567—22.141(455B) and 567—22.142(455B), the department may, in its discretion, determine which of these rules is applicable.

567—22.141(455B) Permit modifications.

22.141(1) Permit modifications shall follow the permit issuance requirements of rules 567—22.135(455B) to 567—22.139(455B) and subrules 22.113(2) and 22.113(3).

22.141(2) For purposes of applying subrule 22.141(1), a permit modification shall be treated as an acid rain permit application, to the extent consistent with rules 567—22.140(455B) to 567—22.145(455B).

22.141(3) The following permit revisions are permit modifications:

a. Relaxation of an excess emission offset requirement after approval of the offset plan by the administrator;

b. Incorporation of a final nitrogen oxides alternative emissions limitation following a demonstration period;

c. Determinations concerning failed repowering projects under subrule 22.132(6); and

d. At the option of the designated representative submitting the permit revision, the permit revisions listed in subrule 22.142(2).

567—22.142(455B) Fast-track modifications.

22.142(1) Fast-track modifications shall follow the following procedures:

a. The designated representative shall serve a copy of the fast-track modification on the administrator, the department, and any person entitled to a written notice under subrules 22.107(6) and 22.107(7). Within five business days of serving such copies, the designated representative shall also give public notice by publication in a newspaper of general circulation in the area where the source is located or in a state publication designed to give general public notice.

b. The public shall have a period of 30 days, commencing on the date of publication of the notice, to comment on the fast-track modification. Comments shall be submitted in writing to the air quality bureau of the department and to the designated representative.

c. The designated representative shall submit the fast-track modification to the department on or before commencement of the public comment period.

d. Within 30 days of the close of the public comment period, the department will consider the fast-track modification and the comments received and approve, in whole or in part or with changes or conditions as appropriate, or disapprove the modification. A fast-track modification shall be effective immediately upon issuance, in accordance with subrule 22.113(2) as applied to significant modifications.

22.142(2) The following permit revisions are, at the option of the designated representative submitting the permit revision, either fast-track modifications under this rule or permit modifications under rule 567—22.141(455B):

a. Incorporation of a compliance option that the designated representative did not submit for approval and comment during the permit issuance process;

b. Addition of a nitrogen oxides averaging plan to a permit; and

c. Changes in a repowering plan, nitrogen oxides averaging plan, or nitrogen oxides compliance deadline extension.

567—22.143(455B) Administrative permit amendment.

22.143(1) Administrative amendments shall follow the procedures set forth at rule 567—22.111(455B). The department will submit the revised portion of the permit to the administrator within ten working days after the date of final action on the request for an administrative amendment.

22.143(2) The following permit revisions are administrative amendments:

a. Activation of a compliance option conditionally approved by the department; provided that all requirements for activation under subrule 22.131(3) and rule 567—22.132(455B) are met;

b. Changes in the designated representative or alternative designated representative; provided that a new certificate of representation is submitted to the administrator in accordance with Subpart B of 40 CFR Part 72;

c. Correction of typographical errors;

d. Changes in names, addresses, or telephone or facsimile numbers;

e. Changes in the owners or operators; provided that a new certificate of representation is submitted within 30 days to the administrator and the department in accordance with Subpart B of 40 CFR Part 72;

f. Termination of a compliance option in the permit; provided that all requirements for termination under subrule 22.131(4) shall be met and this procedure shall not be used to terminate a repowering plan after December 31, 1999;

g. Changes in the date, specified in a new unit's acid rain permit, of commencement of operation or the deadline for monitor certification; provided that they are in accordance with rule 567—22.125(455B);

h. The addition of or change in a nitrogen oxides alternative emissions limitation demonstration period; provided that the requirements of regulations implementing Section 407 of the Act are met; and

i. Incorporation of changes that the administrator has determined to be similar to those in paragraphs *"a"* through *"h"* of this subrule.

567—22.144(455B) Automatic permit amendment. The following permit revisions shall be deemed to amend automatically, and become a part of the affected unit's acid rain permit by operation of law without any further review:

22.144(1) Upon recordation by the administrator under 40 CFR Part 73, all allowance allocations to, transfers to, and deductions from an affected unit's allowance tracking system account; and

22.144(2) Incorporation of an offset plan that has been approved by the administrator under 40 CFR Part 77.

567—22.145(455B) Permit reopenings.

22.145(1) As provided in rule 567—22.114(455B), the department will reopen an acid rain permit for cause, including whenever additional requirements become applicable to any affected unit governed by the permit.

22.145(2) In reopening an acid rain permit for cause, the department will issue a draft permit changing the provisions, or adding the requirements, for which the reopening was necessary. The draft permit shall be subject to the requirements of rules 567—22.135(455B) to 567—22.139(455B).

22.145(3) Any reopening of an acid rain permit shall not affect the term of the permit.

567—22.146(455B) Compliance certification—annual report.

22.146(1) Applicability and deadline. For each calendar year in which a unit is subject to the acid rain emissions limitations, the designated representative of the source at which the unit is located shall submit to the administrator and the department, within 60 days after the end of the calendar year, an annual compliance certification report for the unit in compliance with 40 CFR 72.90.

22.146(2) The submission of complete compliance certifications in accordance with subrule 22.146(1) and rule 567—25.2(455B) shall be deemed to satisfy the requirement to submit compliance certifications under paragraph 22.108(15)*"e"* with regard to the acid rain portion of the source's Title V operating permit.

567—22.147(455B) Compliance certification—units with repowering extension plans. Rescinded IAB 4/8/98, effective 5/13/98.

567—22.148(455B) Sulfur dioxide opt-ins. The department adopts by reference the provisions of 40 CFR Part 74, Acid Rain Opt-Ins.

567—22.149 to **22.199** Reserved.

567—22.200(455B) Definitions for voluntary operating permits. For the purposes of rules 567—22.200(455B) to 567—22.208(455B), the definitions shall be the same as the definitions found at rule 567—22.100(455B).

567—22.201(455B) Eligibility for voluntary operating permits.

22.201(1) Except as provided in 567—subrules 22.201(2) and 22.205(2), any person who owns or operates a major source otherwise required to obtain a Title V operating permit may instead obtain a voluntary operating permit following successful demonstration of the following:

a. That the potential to emit, as limited by the conditions of air quality permits obtained from the department, of each regulated air pollutant shall be limited to less than 100 tons per 12-month rolling period. The fugitive emissions of each regulated air pollutant from a stationary source shall not be considered in determining the potential to emit unless the source belongs to one of the stationary source categories listed in this chapter; and

b. That the actual emissions of each regulated air pollutant have been and are predicted to be less than 100 tons per 12-month rolling period. The fugitive emissions of each regulated air pollutant from a stationary source shall not be considered in determining the actual emissions unless the source belongs to one of the stationary source categories listed in this chapter; and

c. That the potential to emit of each regulated hazardous air pollutant, including fugitive emissions, shall be less than 10 tons per 12-month rolling period and the potential to emit of all regulated hazardous air pollutants, including fugitive emissions, shall be less than 25 tons per 12-month rolling period; and

d. That the actual emissions of each regulated hazardous air pollutant, including fugitive emissions, have been and are predicted to be less than 10 tons per 12-month rolling period and the actual emissions of all regulated hazardous air pollutants, including fugitive emissions, have been and are predicted to be less than 25 tons per 12-month rolling period.

22.201(2) Exceptions.

a. Any affected source subject to the provisions of Title IV of the Act or sources required to obtain a Title V operating permit under paragraph 22.101(1)*"f"* or any solid waste incinerator unit required to obtain a Title V operating permit under Section 129(e) of the Act is not eligible for a voluntary operating permit.

b. Sources which are not major sources but subject to a standard or other requirement under 567—subrule 23.1(2) (standards of performance for new stationary sources) or Section 111 of the Act; or 567—subrule 23.1(3) (emissions standards for hazardous air pollutants), 567—subrule 23.1(4) (emissions standards for hazardous air pollutants for source categories) or Section 112 of the Act are eligible for a voluntary operating permit. These sources shall be required to obtain a Title V operating permit when the exemptions specified in subrule 22.102(1) or 22.102(2) no longer apply.

567—22.202(455B) Requirement to have a Title V permit. No source may operate after the time that it is required to submit a timely and complete application for an operating permit, except in compliance with a properly issued Title V operating permit or a properly issued voluntary operating permit or operating permit by rule for small sources. However, if a source submits a timely and complete application for permit issuance (including renewal), the source's failure to have a permit is not a violation of this chapter until the director takes final action on the permit application, except as noted in this rule. In that case, all terms and conditions of the permit shall remain in effect until the renewal permit has been issued or denied. This protection shall cease to apply if, subsequent to the completeness determination, the

applicant fails to submit, by the deadline specified in writing by the director, any additional information identified as being needed to process the application.

567—22.203(455B) Voluntary operating permit applications.

22.203(1) *Duty to apply.* Any source which would qualify for a voluntary operating permit and which would not qualify under the provisions of rule 567—22.300(455B), operating permit by rule for small sources, must apply for either a voluntary operating permit or a Title V operating permit. Any source determined not to be eligible for a voluntary operating permit shall be subject to enforcement action for operation without a Title V operating permit, except as provided for in rule 567—22.202(455B) and rule 567—22.300(455B). For each source applying for a voluntary operating permit, the owner or operator or designated representative, where applicable, shall present or mail to the Air Quality Bureau, Iowa Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324, an original and one copy of a timely and complete permit application in accordance with this rule.

a. Timely application. Each source applying for a voluntary operating permit shall submit an application:

(1) By July 1, 1996, if the source is existing on or before July 1, 1995, unless otherwise required to obtain a Title V permit under rule 567—22.101(455B);

(2) At least 6 months but not more than 12 months prior to the date of expiration if the application is for renewal;

(3) Within 12 months of becoming subject to rule 567—22.101(455B) for a new source or a source which would otherwise become subject to the Title V permit requirement after July 1, 1995.

b. Complete application. To be deemed complete, an application must provide all information required pursuant to subrule 22.203(2).

c. Duty to supplement or correct application. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to the issuance of a permit. Applicants who have filed a complete application shall have 30 days following notification by the department to file any amendments to the application.

d. Certification of truth, accuracy, and completeness. Any application form, report, or compliance certification submitted pursuant to these rules shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under these rules shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

22.203(2) *Standard application form and required information.* To apply for a voluntary operating permit, applicants shall complete the Voluntary Operating Permit Application Form and supply all information required by the Filing Instructions. The information submitted must be sufficient to evaluate the source, its application, predicted actual emissions from the source, and the potential to emit of the source; and to determine all applicable requirements. The applicant shall submit the information called for by the application form for all emissions units, including those having insignificant activities according to the provisions of rules 567—22.102(455B) and 567—22.103(455B). The standard application form and any attachments shall require that the following information be provided:

a. Identifying information, including company name and address (or plant or source name if different from the company name), owner's name and agent, and telephone number and names of plant site manager or contact;

b. A description of source processes and products (by two-digit Standard Industrial Classification Code);

c. The following emissions-related information shall be submitted to the department on the emissions inventory portion of the application:

(1) All emissions of any regulated air pollutants from each emissions unit and information sufficient to determine which requirements are applicable to the source;

(2) Emissions in tons per year and in such terms as are necessary to establish compliance consistent with the applicable standard reference test method, if any;

(3) The following information to the extent it is needed to determine or regulate emissions, including toxic emissions: fuels, fuel use, raw materials, production rates and operating schedules;

(4) Identification and description of air pollution control equipment;

(5) Identification and description of compliance monitoring devices or activities;

(6) Limitations on source operations affecting emissions or any work practice standards, where applicable, for all regulated pollutants;

(7) Other information required by any applicable requirement; and

(8) Calculations on which the information in (1) to (7) above is based.

(9) Fugitive emissions sources shall be included in the permit application in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

d. Requested permit conditions sufficient to limit the operation of the source according to the requirements of rule 567—22.201(455B).

e. Requirements for compliance certification. This shall include the following:

(1) Certification of compliance for the prior year with all applicable requirements with an exception for violations of subrules 22.1(1) and 22.105(1);

(2) A list of the emission points, control equipment, and emission units in violation of subrule 22.1(1);

(3) Construction permit applications for emission points and associated equipment listed in subparagraph 22.203(2)*"e"*(2); and

(4) Compliance certification certified by a responsible official consistent with 22.203(1)*"d."*

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09]

567—22.204(455B) Voluntary operating permit fees. Each source in compliance with a current voluntary operating permit shall be exempt from Title V operating permit fees.

567—22.205(455B) Voluntary operating permit processing procedures.

22.205(1) *Action on application.*

a. Completeness of applications. The department shall promptly provide notice to the applicant of whether the application is complete. Unless the permitting authority requests additional information or otherwise notifies the applicant of incompleteness within 60 days of receipt of an application, the application shall be deemed complete. If, while processing an application that has been determined to be complete, the permitting authority determines that additional information is necessary to evaluate or take formal action on that application, the permitting authority may request in writing such information and set a reasonable deadline for a response.

b. Public notice and public participation.

(1) The department shall provide public notice and an opportunity for public comment, including an opportunity for a hearing, before issuing or renewing a permit.

(2) Notice of the intended issuance or renewal of a permit shall be given by publication in a newspaper of general circulation in the area where the source is located or in a state publication designed to give general public notice. The department shall also provide the administrator a copy of the notice. The department may use other means if necessary to ensure adequate notice to the affected public.

(3) The public notice shall include: identification of the source; name and address of the permittee; the activity or activities involved in the permit action; the air pollutants or contaminants to be emitted; a statement that a public hearing may be requested, or the time and place of any public hearing which has been set; the name, address, and telephone number of a department representative who may be contacted for further information; and the location of copies of the permit application and the proposed permit which are available for public inspection.

(4) At least 30 days shall be provided for public comment.

22.205(2) *Denial of voluntary operating permit applications.*

a. A voluntary operating permit application may be denied if:

(1) The director finds that a source is not in compliance with any applicable requirement except for subrule 22.1(1); or

(2) An applicant knowingly submits false information in a permit application.

(3) An applicant is unable to certify that the source was in compliance with all applicable requirements, except for subrule 22.1(1), for the year preceding the application.

b. Once agency action has occurred denying a voluntary operating permit, the source shall apply for a Title V operating permit. Any source determined not to be eligible for a voluntary operating permit shall be subject to enforcement action for operating without a Title V operating permit pursuant to rule 567—22.104(455B).

567—22.206(455B) Permit content.

22.206(1) Each voluntary operating permit shall include all of the following provisions:

a. The terms and conditions required for all sources authorized to operate under the permit;

b. Emission limitations and standards, including those operational requirements and limitations that ensure compliance with all applicable requirements at the time of the permit issuance;

c. A certified statement from the source that each emissions unit is in compliance;

d. Monitoring, record keeping, and reporting requirements to ensure compliance with the terms and conditions of the permit. These requirements shall ensure the use of consistent terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable emissions limitations, standards, and other requirements contained in the permit;

e. The requirement to submit the results of any required monitoring at intervals to be specified in the permit;

f. References to the authority for the term or condition;

g. A provision specifying permit duration as a fixed term not to exceed five years;

h. A statement that the voluntary operating permit is to be kept at the site of the source;

i. A statement that the permittee must comply with all conditions of the voluntary operating permit and that any permit noncompliance is grounds for enforcement action, for a permit termination or revocation, and for an immediate requirement to obtain a Title V operating permit;

j. A statement that it shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit;

k. A statement that the permit may be revoked or terminated for cause;

l. A statement that the permit does not convey any property rights of any sort, or any exclusive privilege;

m. A statement that the permittee shall furnish to the director, within a reasonable time, any information that the director may request in writing to determine whether cause exists for revoking or terminating the permit or to determine compliance with the permit; and that, upon request, the permittee also shall furnish to the director copies of records required by the permit to be kept.

22.206(2) The following shall apply to voluntary operating permits:

a. Fugitive emissions from a source shall be included in the permit in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

b. Federally enforceable requirements.

(1) All terms and conditions in a voluntary operating permit, including any provisions designed to limit a source's potential to emit, are enforceable by the administrator and citizens under the Act.

(2) Notwithstanding paragraph *"a"* of this subrule, the director shall specifically designate as not being federally enforceable under the Act any terms and conditions included in the permit that are not required under the Act or under any of its applicable requirements.

c. All emission limitations, all controls, and all other requirements included in a voluntary permit shall be at least as stringent as any other applicable limitation or requirement in the state implementation

plan or enforceable as a practical matter under the state implementation plan. For the purposes of this paragraph, "enforceable as a practical matter under the state implementation plan" shall mean that the provisions of the permit shall specify technically accurate limitations and the portions of the source subject to each limitation; the time period for the limitation (hourly, daily, monthly, annually); and the method to determine compliance including appropriate monitoring, record keeping and reporting.

d. The director shall not issue a voluntary operating permit that waives any limitation or requirement contained in or issued pursuant to the state implementation plan or that is otherwise federally enforceable.

e. The limitations, controls, and requirements in a voluntary operating permit shall be permanent, quantifiable, and otherwise enforceable.

f. Emergency provisions. For the purposes of a voluntary operating permit, an "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

567—22.207(455B) Relation to construction permits.

22.207(1) *Construction permits issued after the voluntary operating permit is issued.* If the issuance of a construction permit acts to make the source no longer eligible for a voluntary operating permit, then the source shall, in accordance with subparagraph 22.105(1)*"a"*(2), not operate without a Title V operating permit, and the source shall be subject to enforcement action for operating without a Title V operating permit.

22.207(2) *Relation of construction permits to voluntary operating permit renewal.* At the time of renewal of a voluntary operating permit, the conditions of construction permits issued during the term of the voluntary operating permit shall be incorporated into the voluntary operating permit. Each application for renewal of a voluntary operating permit shall include a list of construction permits issued during the term of the voluntary operating permit and shall state the effect of each of these construction permits on the conditions of the voluntary operating permit. Applications for renewal shall be accompanied by copies of all construction permits issued during the term of the voluntary operating permit.

567—22.208(455B) Suspension, termination, and revocation of voluntary operating permits.

22.208(1) Permits may be terminated, modified, revoked or reissued for cause. The following examples shall be considered cause for the suspension, modification, revocation, or reissuance of a voluntary permit:

a. The director has reasonable cause to believe that the permit was obtained by fraud or misrepresentation.

b. The person applying for the permit failed to disclose a material fact required by the permit application form or the rules applicable to the permit, of which the applicant had or should have had knowledge at the time the application was submitted.

c. The terms and conditions of the permit have been or are being violated.

d. The permittee has failed to pay an administrative, civil or criminal penalty for violations of the permit.

22.208(2) If the director suspends, terminates or revokes a voluntary permit under this rule, the notice of such action shall be served on the applicant or permittee by certified mail, return receipt requested. The notice shall include a statement detailing the grounds for the action sought, and the proceeding shall in all other respects comply with the requirements of rule 561—7.16(17A,455A).

567—22.209(455B) Change of ownership for facilities with voluntary operating permits. The new owner shall notify the department in writing no later than 30 days after the change of ownership of

equipment covered by a voluntary operating permit. The notification to the department shall be mailed to Air Quality Bureau, Iowa Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324, and shall include the following information:

1. The date of ownership change;
2. The name, address and telephone number of the responsible official, the contact person and the owner of the equipment both before and after the change of ownership; and
3. The voluntary operating permit number for the equipment changing ownership.

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567—22.210 to **22.299** Reserved.

567—22.300(455B) Operating permit by rule for small sources. Except as provided in 567—subrules 22.201(2) and 22.300(11), any source which otherwise would be required to obtain a Title V operating permit may instead register for an operation permit by rule for small sources. Sources which comply with the requirements contained in this rule will be deemed to have an operating permit by rule for small sources. Sources which comply with this rule will be considered to have federally enforceable limits so that their potential emissions are less than the major source thresholds for regulated air pollutants and hazardous air pollutants as defined in rule 567—22.100(455B).

22.300(1) *Definitions for operating permit by rule for small sources.* For the purposes of rule 567—22.300(455B), the definitions shall be the same as the definitions found at rule 567—22.100(455B).

22.300(2) *Registration for operating permit by rule for small sources.*

a. Except as provided in subrules 22.300(3) and 22.300(11), any person who owns or operates a stationary source and meets the following criteria may register for an operating permit by rule for small sources:

(1) The potential to emit air contaminants is equal to or in excess of the threshold for a major stationary source of regulated air pollutants or hazardous air pollutants, and

(2) For every 12-month rolling period, the actual emissions of the stationary source are less than or equal to the emission limitations specified in subrule 22.300(6).

b. Eligibility for an operating permit by rule for small sources does not eliminate the source's responsibility to meet any and all applicable federal requirements including, but not limited to, a maximum achievable control technology (MACT) standard.

c. Nothing in this rule shall prevent any stationary source which has had a Title V operating permit or a voluntary operating permit from qualifying to comply with this rule in the future in lieu of maintaining an application for a Title V operating permit or a voluntary operating permit or upon rescission of a Title V operating permit or a voluntary operating permit if the owner or operator demonstrates that the stationary source is in compliance with the emissions limitations in subrule 22.300(6).

d. The department reserves the right to require proof that the expected emissions from the stationary source, in conjunction with all other emissions, will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28.

22.300(3) *Exceptions to eligibility.*

a. Any affected source subject to the provisions of Title IV of the Act or any solid waste incinerator unit required to obtain a Title V operating permit under Section 129(e) of the Act is not eligible for an operating permit by rule for small sources.

b. Sources which meet the registration criteria established in 22.300(2)*"a"* and meet all applicable requirements of rule 567—22.300(455B), and are subject to a standard or other requirement under 567—subrule 23.1(2) (standards of performance for new stationary sources) or Section 111 of the Act are eligible for an operating permit by rule for small sources. These sources shall be required to obtain a Title V operating permit when the exemptions specified in subrule 22.102(1) or 22.102(2) no longer apply.

c. Sources which meet the registration criteria established in 22.300(2)*"a"* and meet all applicable requirements of rule 567—22.300(455B), and are subject to a standard or other requirement

under 567—subrule 23.1(3) (emissions standards for hazardous air pollutants), 567—subrule 23.1(4) (emissions standards for hazardous air pollutants for source categories) or Section 112 of the Act are eligible for an operating permit by rule for small sources. These sources shall be required to obtain a Title V operating permit when the exemptions specified in subrule 22.102(1) or 22.102(2) no longer apply.

22.300(4) *Stationary source with de minimus emissions.* Stationary sources with de minimus emissions must submit the standard registration form and must meet and fulfill all registration and reporting requirements as found in 22.300(8). Only the record-keeping and reporting provisions listed in 22.300(4)*"b"* shall apply to a stationary source with de minimus emissions or operations as specified in 22.300(4)*"a"*:

a. De minimus emission and usage limits. For the purpose of this rule a stationary source with de minimus emissions means:

(1) In every 12-month rolling period, the stationary source emits less than or equal to the following quantities of emissions:

1. 5 tons per year of a regulated air pollutant (excluding HAPs), and
2. 2 tons per year of a single HAP, and
3. 5 tons per year of any combination of HAPs.

(2) In every 12-month rolling period, at least 90 percent of the stationary source's emissions are associated with an operation for which the throughput is less than or equal to one of the quantities specified in paragraphs "1" to "9" below:

1. 1,400 gallons of any combination of solvent-containing materials but no more than 550 gallons of any one solvent-containing material, provided that the materials do not contain the following: methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (perchloroethylene), or trichloroethylene;
2. 750 gallons of any combination of solvent-containing materials where the materials contain the following: methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (per- chloroethylene), or trichloroethylene, but not more than 300 gallons of any one solvent-containing material;
3. 365 gallons of solvent-containing material used at a paint spray unit(s);
4. 4,400,000 gallons of gasoline dispensed from equipment with Phase I and II vapor recovery systems;
5. 470,000 gallons of gasoline dispensed from equipment without Phase I and II vapor recovery systems;
6. 1,400 gallons of gasoline combusted;
7. 16,600 gallons of diesel fuel combusted;
8. 500,000 gallons of distillate oil combusted; or
9. 71,400,000 cubic feet of natural gas combusted.

b. Record keeping for de minimis sources. Upon registration with the department the owner or operator of a stationary source eligible to register for an operating permit by rule for small sources shall comply with all applicable record-keeping requirements of this rule. The record-keeping requirements of this rule shall not replace any record-keeping requirement contained in a construction permit or in a local, state, or federal rule or regulation.

(1) De minimis sources shall always maintain an annual log of each raw material used and its amount. The annual log and all related material safety data sheets (MSDS) for all materials shall be maintained for a period of not less than the most current five years. The annual log will begin on the date the small source operating permit application is submitted, then on an annual basis, based on a calendar year.

(2) Within 30 days of a written request by the state or the U.S. EPA, the owner or operator of a stationary source not maintaining records pursuant to subrule 22.300(7) shall demonstrate that the stationary source's emissions or throughput is not in excess of the applicable quantities set forth in paragraph *"a"* above.

22.300(5) *Provision for air pollution control equipment.* The owner or operator of a stationary source may take into account the operation of air pollution control equipment on the capacity of the source to emit an air contaminant if the equipment is required by federal, state, or local air pollution control agency rules and regulations or permit terms and conditions that are federally enforceable. The owner or operator of the stationary source shall maintain and operate such air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

22.300(6) *Emission limitations.*

a. No stationary source subject to this rule shall emit in every 12-month rolling period more than the following quantities of emissions:

(1) 50 percent of the major source thresholds for regulated air pollutants (excluding hazardous air pollutants), and

(2) 5 tons per year of a single hazardous air pollutant, and

(3) 12.5 tons per year of any combination of hazardous air pollutants.

b. The owner or operator of a stationary source subject to this rule shall obtain any necessary permits prior to commencing any physical or operational change or activity which will result in actual emissions that exceed the limits specified in paragraph *"a"* of this subrule.

22.300(7) *Record-keeping requirements for non-de minimis sources.* Upon registration with the department the owner or operator of a stationary source eligible to register for an operating permit by rule for small stationary sources shall comply with all applicable record-keeping requirements in this rule. The record-keeping requirements of this rule shall not replace any record-keeping requirement contained in any operating permit, a construction permit, or in a local, state, or federal rule or regulation.

a. A stationary source previously covered by the provisions in 22.300(4) shall comply with the applicable provisions of subrule 22.300(7) (record-keeping requirements) and subrule 22.300(8) (reporting requirements) if the stationary source exceeds the quantities specified in paragraph 22.300(4)*"a."*

b. The owner or operator of a stationary source subject to this rule shall keep and maintain records, as specified in 22.300(7)*"c"* below, for each permitted emission unit and each piece of emission control equipment sufficient to determine actual emissions. Such information shall be maintained on site for five years, and be made available to local, state, or U.S. EPA staff upon request.

c. Record-keeping requirements for emission units and emission control equipment. Record-keeping requirements for emission units are specified below in 22.300(7)*"c"*(1) through 22.300(7)*"c"*(4). Record-keeping requirements for emission control equipment are specified in 22.300(7)*"c"*(5).

(1) Coating/solvent emission unit. The owner or operator of a stationary source subject to this rule that contains a coating/solvent emission unit not permitted under 22.8(1) (permit by rule for spray booths) or uses a coating, solvent, ink or adhesive shall keep and maintain the following records:

1. A current list of all coatings, solvents, inks and adhesives in use. This list shall include: material safety data sheets (MSDS), manufacturer's product specifications, and material VOC content reports for each solvent (including solvents used in cleanup and surface preparation), coating, ink, and adhesive used showing at least the product manufacturer, product name and code, VOC and hazardous air pollutant content;

2. A description of any equipment used during and after coating/solvent application, including type, make and model; maximum design process rate or throughput; and control device(s) type and description (if any);

3. A monthly log of the consumption of each solvent (including solvents used in cleanup and surface preparation), coating, ink, and adhesive used; and

4. All purchase orders, invoices, and other documents to support information in the monthly log.

(2) Organic liquid storage unit. The owner or operator of a stationary source subject to this rule that contains an organic liquid storage unit shall keep and maintain the following records:

1. A monthly log identifying the liquid stored and monthly throughput; and

2. Information on the tank design and specifications including control equipment.

(3) Combustion emission unit. The owner or operator of a stationary source subject to this rule that contains a combustion emission unit shall keep and maintain the following records:

1. Information on equipment type, make and model, maximum design process rate or maximum power input/output, minimum operating temperature (for thermal oxidizers) and capacity and all source test information; and

2. A monthly log of fuel type, fuel usage, fuel heating value (for nonfossil fuels; in terms of Btu/lb or Btu/gal), and percent sulfur for fuel oil and coal.

(4) General emission unit. The owner or operator of a stationary source subject to this rule that contains an emission unit not included in subparagraph (1), (2), or (3) above shall keep and maintain the following records:

1. Information on the process and equipment including the following: equipment type, description, make and model; and maximum design process rate or throughput;

2. A monthly log of operating hours and each raw material used and its amount; and

3. Purchase orders, invoices, or other documents to support information in the monthly log.

(5) Emission control equipment. The owner or operator of a stationary source subject to this rule that contains emission control equipment shall keep and maintain the following records:

1. Information on equipment type and description, make and model, and emission units served by the control equipment;

2. Information on equipment design including, where applicable: pollutant(s) controlled; control effectiveness; and maximum design or rated capacity; other design data as appropriate including any available source test information and manufacturer's design/repair/maintenance manual; and

3. A monthly log of hours of operation including notation of any control equipment breakdowns, upsets, repairs, maintenance and any other deviations from design parameters.

22.300(8) *Registration and reporting requirements.*

a. Duty to apply. Any person who owns or operates a source otherwise required to obtain a Title V operating permit and which would be eligible for an operating permit by rule for small sources must either register for an operating permit by rule for small sources, apply for a voluntary operating permit, or apply for a Title V operating permit. Any source determined not to be eligible for an operating permit by rule for small sources, and operating without a valid Title V or a valid voluntary operating permit, shall be subject to enforcement action for operation without a Title V operating permit, except as provided for in the application shield provisions contained in rules 567—22.104(455B) and 567—22.202(455B). For each source registering for an operating permit by rule for small sources, the owner or operator or designated representative, where applicable, shall present or mail to the Air Quality Bureau, Iowa Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324, one original and one copy of a timely and complete registration form in accordance with this rule.

(1) Timely registration. Each source registering for an operating permit by rule for small sources shall submit a registration form:

1. By August 1, 1996, if the source became subject to rule 567—22.101(455B) on or before August 1, 1995, unless otherwise required to obtain a Title V permit under rule 567—22.101(455B).

2. Within 12 months of becoming subject to rule 567—22.101(455B) (the requirement to obtain a Title V operating permit) for a new source or a source which would otherwise become subject to the Title V permit requirement after August 1, 1995.

(2) Complete registration form. To be deemed complete the registration form must provide all information required pursuant to 22.300(8)*"b."*

(3) Duty to supplement or correct registration. Any registrant who fails to submit any relevant facts or who has submitted incorrect information in an operating permit by rule for small sources registration shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, the registrant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete registration.

(4) Certification of truth, accuracy, and completeness. Any registration form, report, or supplemental information submitted pursuant to these rules shall contain certification by a responsible

official of truth, accuracy, and completeness. This certification and any other certification required under these rules shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

b. At the time of registration for an operating permit by rule for small sources each owner or operator of a stationary source shall submit to the department a standard registration form and required attachments. To register for an operating permit by rule for small sources, applicants shall complete the registration form and supply all information required by the filing instructions. The information submitted must be sufficient to evaluate the source, its registration, predicted actual emissions from the source; and to determine whether the source is subject to the exceptions listed in subrule 22.300(3). The standard registration form and attachments shall require that the following information be provided:

(1) Identifying information, including company name and address (or plant or source name if different from the company name), owner's name and responsible official, and telephone number and names of plant site manager or contact;

(2) A description of source processes and products;

(3) The following emissions-related information shall be submitted to the department on the standard registration form:

1. The total actual emissions of each regulated air pollutant. Actual emissions shall be reported for one contiguous 12-month period within the 18 months preceding submission of the registration to the department;

2. Identification and description of each emission unit with the potential to emit a regulated air pollutant;

3. Identification and description of air pollution control equipment;

4. Limitations on source operations affecting emissions or any work practice standards, where applicable, for all regulated pollutants;

5. Fugitive emissions sources shall be included in the registration form in the same manner as stack emissions if the source is one of the source categories defined as a stationary source category in rule 567—22.100(455B).

(4) Requirements for certification. Facilities which claim to meet the requirements set forth in this rule to qualify for an operating permit by rule for small sources must submit to the department, with a complete registration form, a written statement as follows:

"I certify that all equipment at the facility with a potential to emit any regulated pollutant is included in the registration form, and submitted to the department as required in 22.300(8)*"b."* I understand that the facility will be deemed to have been granted an operating permit by rule for small sources under the terms of rule 567—22.300(455B) only if all applicable requirements of rule 567—22.300(455B) are met and if the registration is not denied by the director under rule 567—22.300(11). This certification is based on information and belief formed after reasonable inquiry; the statements and information in the document are true, accurate, and complete." The certification must be signed by one of the following individuals.

For corporations, a principal executive officer of at least the level of vice president, or a responsible official as defined at rule 567—22.100(455B).

For partnerships, a general partner.

For sole proprietorships, the proprietor.

For municipal, state, county, or other public facilities, the principal executive officer or the ranking elected official.

22.300(9) *Construction permits issued after registration for an operating permit by rule for small sources.* This rule shall not relieve any stationary source from complying with requirements pertaining to any otherwise applicable construction permit, or to replace a condition or term of any construction permit, or any provision of a construction permitting program. This does not preclude issuance of any construction permit with conditions or terms necessary to ensure compliance with this rule.

a. If the issuance of a construction permit acts to make the source no longer eligible for an operating permit by rule for small sources, the source shall, within 12 months of issuance of the

construction permit, submit an application for either a Title V operating permit or a voluntary operating permit.

b. If the issuance of a construction permit does not prevent the source from continuing to be eligible to operate under an operating permit by rule for small sources, the source shall, within 30 days of issuance of a construction permit, provide to the department the information as listed in 22.300(8)*"b"* for the new or modified source.

22.300(10) *Violations.*

a. Failure to comply with any of the applicable provisions of this rule shall constitute a violation of this rule.

b. A stationary source subject to this rule shall be subject to applicable federal requirements for a major source, including rules 567—22.101(455B) to 567—22.116(455B) when the conditions specified in either subparagraph (1) or (2) below, occur:

(1) Commencing on the first day following every 12-month rolling period in which the stationary source exceeds a limit specified in subrule 22.300(6), or

(2) Commencing on the first day following every 12-month rolling period in which the owner or operator cannot demonstrate that the stationary source is in compliance with the limits in subrule 22.300(6).

22.300(11) *Suspension, termination, and revocation of an operating permit by rule for small sources.*

a. Registrations may be terminated, modified, revoked, or reissued for cause. The following examples shall be considered cause for the suspension, modification, revocation, or reissuance of an operating permit by rule for small sources:

(1) The director has reasonable cause to believe that the operating permit by rule for small sources was obtained by fraud or misrepresentation.

(2) The person registering for the operating permit by rule for small sources failed to disclose a material fact required by the registration form or the rules applicable to the operating permit by rule for small sources, of which the applicant had or should have had knowledge at the time the registration form was submitted.

(3) The terms and conditions of the operating permit by rule for small sources have been or are being violated.

(4) The owner or operator of the source has failed to pay an administrative, civil or criminal penalty for violations of the operating permit by rule for small sources.

b. If the director suspends, terminates or revokes an operating permit by rule for small sources under this rule, the notice of such action shall be served on the applicant by certified mail, return receipt requested. The notice shall include a statement detailing the grounds for the action sought, and the proceeding shall in all other respects comply with the requirements of rule 561—7.16(17A,455A).

22.300(12) *Change of ownership.* The new owner shall notify the department in writing no later than 30 days after the change of ownership of equipment covered by an operating permit by rule for small sources. The notification to the department shall be mailed to Air Quality Bureau, Iowa Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324, and shall include the following information:

a. The date of ownership change; and

b. The name, address and telephone number of the responsible official, the contact person and the owner of the equipment both before and after the change of ownership.

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◊ Two or more ARCs

[1] Effective date of 22.1(455B) [DEQ, 3.1] delayed by the Administrative Rules Review Committee 70 days from June 21, 1978. The Administrative Rules Review Committee at the August 15, 1978 meeting delayed 22.1 [DEQ, 3.1] under provisions of 67GA, SF244, §19. (See HJR 6, 1/22/79).

[2] Effective date of 22.100(455B), definition of "12-month rolling period"; 22.200(455B); 22.201(1)*"a," "b,"*; 22.201(2)*"a"*; 22.206(2)*"c,"* delayed 70 days by the Administrative Rules Review Committee at its meeting held October 10, 1995; delay lifted by this Committee December 13, 1995, effective December 14, 1995.

[3] Effective date of 22.300 delayed 70 days by the Administrative Rules Review Committee at its meeting held June 11, 1996; delay lifted by this Committee at its meeting held June 12, 1996, effective June 12, 1996.

[4] Effective date of 22.1(2), unnumbered introductory paragraphs and paragraphs *"g"* and *"i,"* delayed 70 days by the Administrative Rules Review Committee at its meeting held March 9, 2001.

CHAPTER 33
SPECIAL REGULATIONS AND CONSTRUCTION PERMIT REQUIREMENTS FOR MAJOR STATIONARY SOURCES—PREVENTION OF SIGNIFICANT DETERIORATION (PSD) OF AIR QUALITY

567—33.1(455B) Purpose. This chapter implements the major New Source Review (NSR) program contained in Part C of Title I of the federal Clean Air Act as amended on November 15, 1990, and as promulgated under 40 CFR 51.166 and 52.21 as amended through July 20, 2011. This is a preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under Part C of the Clean Air Act as amended on November 15, 1990. In areas that do not meet the national ambient air quality standards (NAAQS), the nonattainment NSR program applies. The requirements for the nonattainment NSR program are set forth in 567—22.5(455B) and 567—22.6(455B). In areas that meet the NAAQS, the PSD program applies. Collectively, the nonattainment NSR and PSD programs are referred to as the major NSR program.

Rule 567—33.2(455B) is reserved.

Rule 567—33.3(455B) sets forth the definitions, standards and permitting requirements that are specific to the PSD program.

Rules 567—33.4(455B) through 567—33.8(455B) are reserved.

Rule —567—33.9(455B) includes the conditions under which a source subject to PSD may obtain a plantwide applicability limitation (PAL) on emissions.

In addition to the requirements in this chapter, stationary sources may also be subject to the permitting requirements in 567—Chapter 22, including requirements for Title V operating permits.

[**ARC 9906B**, IAB 12/14/11, effective 11/16/11]

567—33.2(455B) Reserved.

567—33.3(455B) Special construction permit requirements for major stationary sources in areas designated attainment or unclassified (PSD).

33.3(1) *Definitions.* Definitions included in this subrule apply to the provisions set forth in this rule (PSD program requirements). For purposes of this rule, the definitions herein shall apply, rather than the definitions contained in 40 CFR 52.21 and 51.166, except for the PAL program definitions referenced in rule 567—33.9(455B). For purposes of this rule, the following terms shall have the meanings indicated in this subrule:

"Act" means the Clean Air Act, 42 U.S.C. Sections 7401, et seq., as amended through November 15, 1990.

"Actual emissions" means:

1. The actual rate of emissions of a regulated NSR pollutant from an emissions unit, as determined in accordance with paragraphs "2" through "4," except that this definition shall not apply for calculating whether a significant emissions increase has occurred, or for establishing a PAL under rule 567—33.9(455B). Instead, the requirements specified under the definitions for "projected actual emissions" and "baseline actual emissions" shall apply for those purposes.

2. In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The department shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

3. The department may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

4. For any emissions unit that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

"Administrator" means the administrator for the United States Environmental Protection Agency (EPA) or designee.

"Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits or enforceable permit conditions which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

1. The applicable standards as set forth in 567—subrules 23.1(2) through 23.1(5) (new source performance standards, emissions standards for hazardous air pollutants, and federal emissions guidelines) or an applicable federal standard not adopted by the state, as set forth in 40 CFR Parts 60, 61 and 63;

2. The applicable state implementation plan (SIP) emissions limitation, including those with a future compliance date; or

3. The emissions rate specified as an enforceable permit condition, including those with a future compliance date.

"Baseline actual emissions," for the purposes of this chapter, means the rate of emissions, in tons per year, of a regulated NSR pollutant, as "regulated NSR pollutant" is defined in this subrule, and as determined in accordance with paragraphs "1" through "4."

1. For any existing electric utility steam generating unit, "baseline actual emissions" means the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the five-year period immediately preceding the date on which the owner or operator begins actual construction of the project. The department shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

(a) The average rate shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions.

(b) The average rate shall be adjusted downward to exclude any noncompliant emissions that occurred while the source was operating above an emissions limitation that was legally enforceable during the consecutive 24-month period.

(c) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed. A different consecutive 24-month period may be used for each regulated NSR pollutant.

(d) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by paragraph "1"(b) of this definition.

2. For an existing emissions unit, other than an electric utility steam generating unit, "baseline actual emissions" means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the ten-year period immediately preceding either the date on which the owner or operator begins actual construction of the project, or the date on which a complete permit application is received by the department for a permit required either under this chapter or under a SIP approved by the Administrator, whichever is earlier, except that the ten-year period shall not include any period earlier than November 15, 1990.

(a) The average rate shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions.

(b) The average rate shall be adjusted downward to exclude any noncompliant emissions that occurred while the source was operating above an emissions limitation that was legally enforceable during the consecutive 24-month period.

(c) The average rate shall be adjusted downward to exclude any emissions that would have exceeded an emissions limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the consecutive 24-month period. However, if an emissions limitation is part of a maximum achievable control technology standard that the Administrator proposed or promulgated under 40 CFR Part 63, the baseline

actual emissions need only be adjusted if the state has taken credit for such emissions reductions in an attainment demonstration or maintenance plan consistent with the requirements of 40 CFR 51.165(a)(3)(ii)(G) as amended through November 29, 2005.

(d) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed. A different consecutive 24-month period may be used for each regulated NSR pollutant.

(e) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by paragraphs "2"(b) and "2"(c) of this definition.

3. For a new emissions unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall equal the unit's potential to emit.

4. For a PAL for a stationary source, the baseline actual emissions shall be calculated for existing electric utility steam generating units in accordance with the procedures contained in paragraph "1"; for other existing emissions units in accordance with the procedures contained in paragraph "2"; and for a new emissions unit in accordance with the procedures contained in paragraph "3."

"Baseline area" means:

1. Any intrastate area (and every part thereof) designated as attainment or unclassifiable under Section 107(d)(1)(D) or (E) of the Act in which the major source or major modification establishing the minor source baseline date would construct or would have an air quality impact equal to or greater than 1 ug/m^3 (annual average) of the pollutant for which the minor source baseline date is established.

2. Area redesignations under Section 107(d)(1)(D) or (E) of the Act cannot intersect or be smaller than the area of impact of any major stationary source or major modification which establishes a minor source baseline date or is subject to regulations specified in this rule, in 40 CFR 52.21 (PSD requirements), or in department rules approved by EPA under 40 CFR Part 51, Subpart I, and would be constructed in the same state as the state proposing the redesignation.

3. Any baseline area established originally for the total suspended particulate increments shall remain in effect and shall apply for purposes of determining the amount of available PM_{10} increments, except that such baseline area shall not remain in effect if the permitting authority rescinds the corresponding minor source baseline date in accordance with the definition of "baseline date" specified in this subrule.

"Baseline concentration" means:

1. The ambient concentration level that exists in the baseline area at the time of the applicable minor source baseline date. A baseline concentration is determined for each pollutant for which a minor source baseline date is established and shall include:

(a) The actual emissions representative of sources in existence on the applicable minor source baseline date, except as provided in paragraph "2" of this definition;

(b) The allowable emissions of major stationary sources that commenced construction before the major source baseline date, but were not in operation by the applicable minor source baseline date.

2. The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(a) Actual emissions from any major stationary source on which construction commenced after the major source baseline date; and

(b) Actual emissions increases and decreases at any stationary source occurring after the minor source baseline date.

"Baseline date" means:

1. Either "major source baseline date" or "minor source baseline date" as follows:

(a) The "major source baseline date" means, in the case of particulate matter and sulfur dioxide, January 6, 1975, and in the case of nitrogen dioxide, February 8, 1988.

(b) The "minor source baseline date" means the earliest date after the trigger date on which a major stationary source or a major modification subject to 40 CFR 52.21 as amended through November 29,

2005, or subject to this rule (PSD program requirements), or subject to a department rule approved by EPA under 40 CFR Part 51, Subpart I, submits a complete application under the relevant regulations. The trigger date for particulate matter and sulfur dioxide is August 7, 1977. For nitrogen dioxide, the trigger date is February 8, 1988.

2. The "baseline date" is established for each pollutant for which increments or other equivalent measures have been established if:

(a) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under Section 107(d)(i)(D) or (E) of the Act for the pollutant on the date of its complete application under 40 CFR 52.21 as amended through November 29, 2005, or under regulations specified in this rule (PSD program requirements); and

(b) In the case of a major stationary source, the pollutant would be emitted in significant amounts, or in the case of a major modification, there would be a significant net emissions increase of the pollutant.

Any minor source baseline date established originally for the total suspended particulate increments shall remain in effect and shall apply for purposes of determining the amount of available PM_{10} increments, except that the reviewing authority may rescind any such minor source baseline date where it can be shown, to the satisfaction of the reviewing authority, that the emissions increase from the major stationary source, or the net emissions increase from the major modification, responsible for triggering that date did not result in a significant amount of PM_{10} emissions.

"Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operation, this term refers to those on-site activities, other than preparatory activities, which mark the initiation of the change.

"Best available control technology" or *"BACT"* means an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the reviewing authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 567—subrules 23.1(2) through 23.1(5) (standards for new stationary sources, federal standards for hazardous air pollutants, and federal emissions guidelines), or federal regulations as set forth in 40 CFR Parts 60, 61 and 63 but not yet adopted by the state. If the department determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation and shall provide for compliance by means which achieve equivalent results.

"Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same major group (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

"CFR" means the Code of Federal Regulations, with standard references in this chapter by title and part, so that "40 CFR 51" or "40 CFR Part 51" means "Title 40 Code of Federal Regulations, Part 51."

"Clean coal technology" means any technology, including technologies applied at the precombustion, combustion, or postcombustion stage, at a new or existing facility which will achieve

significant reductions in air emissions of sulfur dioxide or oxides of nitrogen associated with the utilization of coal in the generation of electricity, or process steam which was not in widespread use as of November 15, 1990.

"Clean coal technology demonstration project" means a project using funds appropriated under the heading "Department of Energy—Clean Coal Technology," up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency. The federal contribution for a qualifying project shall be at least 20 percent of the total cost of the demonstration project.

"Commence," as applied to construction of a major stationary source or major modification, means that the owner or operator has all necessary preconstruction approvals or permits and either has:

1. Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

2. Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

"Complete" means, in reference to an application for a permit, that the application contains all the information necessary for processing the application. Designating an application complete for purposes of permit processing does not preclude the department from requesting or accepting any additional information.

"Construction" means any physical change or change in the method of operation, including fabrication, erection, installation, demolition, or modification of an emissions unit, that would result in a change in emissions.

"Continuous emissions monitoring system" or *"CEMS"* means all of the equipment that may be required to meet the data acquisition and availability requirements of this chapter, to sample, to condition (if applicable), to analyze, and to provide a record of emissions on a continuous basis.

"Continuous emissions rate monitoring system" or *"CERMS"* means the total equipment required for the determination and recording of the pollutant mass emissions rate (in terms of mass per unit of time).

"Continuous parameter monitoring system" or *"CPMS"* means all of the equipment necessary to meet the data acquisition and availability requirements of this chapter, to monitor the process device operational parameters and the control device operational parameters (e.g., control device secondary voltages and electric currents) and other information (e.g., gas flow rate, O_2 or CO_2 concentrations), and to record the average operational parameter value(s) on a continuous basis.

"Electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

"Emissions unit" means any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit. For purposes of this chapter, there are two types of emissions units:

1. A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than two years from the date such emissions unit first operated.

2. An existing emissions unit is any emissions unit that does not meet the requirements in "1" above. A replacement unit is an existing emissions unit.

"Enforceable permit condition," for the purpose of this chapter, means any of the following limitations and conditions: requirements development pursuant to new source performance standards, prevention of significant deterioration standards, emissions standards for hazardous air pollutants, requirements within the SIP, and any permit requirements established pursuant to this chapter, any permit requirements established pursuant to 40 CFR 52.21 or Part 51, Subpart I, as amended through November 29, 2005, or under conditional, construction or Title V operating permit rules.

"Federal land manager" means, with respect to any lands in the United States, the secretary of the department with authority over such lands.

"Federally enforceable" means all limitations and conditions which are enforceable by the Administrator and the department, including those federal requirements not yet adopted by the state, developed pursuant to 40 CFR Parts 60, 61 and 63; requirements within 567—subrules 23.1(2) through 23.1(5); requirements within the SIP; any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, as amended through November 29, 2005, including operating permits issued under an EPA-approved program, that are incorporated into the SIP and expressly require adherence to any permit issued under such program.

"Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

"High terrain" means any area having an elevation 900 feet or more above the base of the stack of a source.

"Indian governing body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

"Indian reservation" means any federally recognized reservation established by treaty, agreement, executive order, or Act of Congress.

"Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or non-air quality environmental impacts.

"Lowest achievable emissions rate" or *"LAER"* means, for any source, the more stringent rate of emissions based on the following:

1. The most stringent emissions limitation which is contained in the SIP for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

2. The most stringent emissions limitation which is achieved in practice by such class or category of stationary sources. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within a stationary source. In no event shall the application of the term permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under an applicable new source standard of performance.

"Low terrain" means any area other than high terrain.

"Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase of a regulated NSR pollutant and a significant net emissions increase of that pollutant from the major stationary source.

1. Any significant emissions increase from any emissions units or net emissions increase at a major stationary source that is significant for volatile organic compounds or NO_x shall be considered significant for ozone.

2. A physical change or change in the method of operation shall not include:

(a) Routine maintenance, repair and replacement

(b) Use of an alternative fuel or raw material by reason of any order under Section 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(c) Use of an alternative fuel by reason of an order or rule under Section 125 of the Act;

(d) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(e) Use of an alternative fuel or raw material by a stationary source that the source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition, or that the source is approved to use under any federally enforceable permit condition;

(f) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975;

(g) Any change in ownership at a stationary source;

(h) Reserved.

(i) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with the requirements within the SIP; and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after the project is terminated;

(j) The installation or operation of a permanent clean coal technology demonstration project that constitutes repowering, provided that the project does not result in an increase in the potential to emit of any regulated pollutant emitted by the unit. This exemption shall apply on a pollutant-by-pollutant basis;

(k) The reactivation of a very clean coal-fired electric utility steam generating unit.

3. This definition shall not apply with respect to a particular regulated NSR pollutant when the major stationary source is complying with the requirements under rule 567—33.9(455B) for a PAL for that pollutant. Instead, the definition under rule 567—33.9(455B) shall apply.

"Major source baseline date" is defined under the definition of "baseline date."

"Major stationary source" means:

(1) (a) Any one of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any regulated NSR pollutant:

- Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;
- Coal cleaning plants (with thermal dryers);
- Kraft pulp mills;
- Portland cement plants;
- Primary zinc smelters;
- Iron and steel mill plants;
- Primary aluminum ore reduction plants;
- Primary copper smelters;
- Municipal incinerators capable of charging more than 250 tons of refuse per day;
- Hydrofluoric, sulfuric, and nitric acid plants;
- Petroleum refineries;
- Lime plants;
- Phosphate rock processing plants;
- Coke oven batteries;
- Sulfur recovery plants;
- Carbon black plants (furnace process);
- Primary lead smelters;
- Fuel conversion plants;
- Sintering plants;
- Secondary metal production plants;
- Chemical process plants (which does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS code 325193 or 312140);
- Fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input;
- Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
- Taconite ore processing plants;
- Glass fiber processing plants; and
- Charcoal production plants.

(b) Notwithstanding the stationary source size specified in paragraph "1"(a), any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant; or

(c) Any physical change that would occur at a stationary source not otherwise qualifying under this definition as a major stationary source if the change would constitute a major stationary source by itself.

(2) A major source that is major for volatile organic compounds or NO_x shall be considered major for ozone.

(3) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this rule whether it is a major stationary source, unless the source belongs to one of the categories of stationary sources listed in paragraph "1"(a) of this definition or to any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act.

"Minor source baseline date" is defined under the definition of "baseline date."

"Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the SIP.

"Net emissions increase" means, with respect to any regulated NSR pollutant emitted by a major stationary source, the amount by which the following exceeds zero:

- The increase in emissions from a particular physical change or change in the method of operation at a stationary source as calculated according to the applicability requirements under subrule 33.3(2); and
- Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases under this definition of "net emissions increase" shall be determined as provided for under the definition of "baseline actual emissions," except that paragraphs "1"(c) and "2"(d) of the definition of "baseline actual emissions," which describe provisions for multiple emissions units, shall not apply.

1. An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if the increase or decrease in actual emissions occurs between the date five years before construction on the particular change commences and the date that the increase from the particular change occurs.

2. An increase or decrease in actual emissions is creditable only if:

(a) The increase or decrease in actual emissions occurs within the contemporaneous time period, as noted in paragraph "1" of this definition; and

(b) The department has not relied on the increase or decrease in actual emissions in issuing a permit for the source under this rule, which permit is in effect when the increase in actual emissions from the particular change occurs.

3. An increase or decrease in actual emissions of sulfur dioxide, particulate matter, or nitrogen oxides that occurs before the applicable minor source baseline date is creditable only if the increase or decrease in actual emissions is required to be considered in calculating the amount of maximum allowable increases remaining available.

4. An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

5. A decrease in actual emissions is creditable only to the extent that:

(a) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(b) The decrease in actual emissions is enforceable as a practical matter at and after the time that actual construction on the particular change begins; and

(c) The decrease in actual emissions has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

6. An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

7. The definition of "actual emissions," paragraph "2," shall not apply for determining creditable increases and decreases.

"Nonattainment area" means an area so designated by the Administrator, acting pursuant to Section 107 of the Act.

"Permitting authority" means the Iowa department of natural resources or the director thereof.

"Pollution prevention" means any activity that, through process changes, product reformulation or redesign, or substitution of less polluting raw materials, eliminates or reduces the release of air pollutants (including fugitive emissions) and other pollutants to the environment prior to recycling, treatment, or disposal. "Pollution prevention" does not mean recycling (other than certain "in-process recycling" practices), energy recovery, treatment, or disposal.

"Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

"Predictive emissions monitoring system" or *"PEMS"* means all of the equipment necessary to monitor the process device operational parameters and the control device operational parameters (e.g., control device secondary voltages and electric currents) and other information (e.g., gas flow rate, O_2 or CO_2 concentrations), and calculate and record the mass emissions rate (e.g., lb/hr) on a continuous basis.

"Prevention of significant deterioration (PSD) program" means a major source preconstruction permit program that has been approved by the Administrator and incorporated into the SIP or means the program in 40 CFR 52.21. Any permit issued under such a program is a major NSR permit.

"Project" means a physical change in, or change in method of operation of, an existing major stationary source.

"Projected actual emissions," for the purposes of this chapter, means the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the five years (12-month period) beginning on the first day of the month following the date when the unit resumes regular operation after the project, or in any one of the ten years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that regulated NSR pollutant, and full utilization of the unit would result in a significant emissions increase, or a significant net emissions increase at the major stationary source. For purposes of this definition, "regular" shall be determined by the department on a case-by-case basis.

In determining the projected actual emissions before beginning actual construction, the owner or operator of the major stationary source:

1. Shall consider all relevant information including, but not limited to, historical operational data, the company's own representations, the company's expected business activity and the company's highest projections of business activity, the company's filings with the state or federal regulatory authorities, and compliance plans under the approved plan; and

2. Shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions; and

3. Shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project, including any increased utilization due to product demand growth; or

4. In lieu of using the method set out in paragraphs "1" through "3," may elect to use the emissions unit's potential to emit, in tons per year.

"Reactivation of a very clean coal-fired electric utility steam generating unit" means any physical change or change in the method of operation associated with the commencement of commercial operations by a coal-fired utility unit after a period of discontinued operation in which the unit:

1. Has not been in operation for the two-year period prior to the enactment of the Act, and the emissions from such unit continue to be carried in the permitting authority's emissions inventory at the time of the enactment;

2. Was equipped prior to shutdown with a continuous system of emissions control that achieves a removal efficiency for sulfur dioxide of no less than 85 percent and a removal efficiency for particulates of no less than 98 percent;

3. Is equipped with low-NO_X burners prior to the time of commencement of operations following reactivation; and

4. Is otherwise in compliance with the requirements of the Act.

"Regulated NSR pollutant" means the following:

1. Any pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator (e.g., volatile organic compounds and NO_X are precursors for ozone);

2. Any pollutant that is subject to any standard promulgated under Section 111 of the Act;

3. Any Class I or Class II substance subject to a standard promulgated under or established by Title VI of the Act; or

4. Any pollutant that otherwise is subject to regulation under the Act as defined in 33.3(1), definition of "subject to regulation."

5. Notwithstanding paragraphs "1" through "4," the definition of "regulated NSR pollutant" shall not include any or all hazardous air pollutants that are either listed in Section 112 of the Act or added to the list pursuant to Section 112(b)(2) of the Act and that have not been delisted pursuant to Section 112(b)(3) of the Act, unless the listed hazardous air pollutant is also regulated as a constituent or precursor of a general pollutant listed under Section 108 of the Act.

"Replacement unit" means an emissions unit for which all the criteria listed in paragraphs "1" through "4" of this definition are met. No creditable emissions reductions shall be generated from shutting down the existing emissions unit that is replaced.

1. The emissions unit is a reconstructed unit within the meaning of 40 CFR 60.15(b)(1) as amended through December 16, 1975, or the emissions unit completely takes the place of an existing emissions unit.

2. The emissions unit is identical to or functionally equivalent to the replaced emissions unit.

3. The replacement does not change the basic design parameter(s) of the process unit.

4. The replaced emissions unit is permanently removed from the major stationary source, otherwise permanently disabled, or permanently barred from operation by a permit that is enforceable as a practical matter. If the replaced emissions unit is brought back into operation, it shall constitute a new emissions unit.

"Repowering" means:

1. Replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion; integrated gasification combined cycle; magnetohydrodynamics; direct and indirect coal-fired turbines; integrated gasification fuel cells; or, as determined by the Administrator in consultation with the Secretary of Energy, a derivative of one or more of these technologies; and any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

2. Repowering shall also include any oil or gas-fired unit which has been awarded clean coal technology demonstration funding as of January 1, 1991, by the Department of Energy.

3. The department shall give expedited consideration to permit applications for any source that satisfies the requirements of this definition and is granted an extension under Section 409 of the Act.

"Reviewing authority" means the department, or the Administrator in the case of EPA-implemented permit programs under 40 CFR 52.21.

"Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purposes of this chapter, "secondary emissions" must be specific, well-defined, and quantifiable, and must impact the same general areas as the stationary source modification which causes the secondary emissions. "Secondary emissions" includes emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. "Secondary

emissions" does not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

"Significant" means:

1. In reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

- Carbon monoxide: 100 tons per year (tpy)
- Nitrogen oxides: 40 tpy
- Sulfur dioxide: 40 tpy
- Particulate matter: 25 tpy of particulate matter emissions or 15 tpy of PM_{10} emissions
- Ozone: 40 tpy of volatile organic compounds or NO_x
- Lead: 0.6 tpy
- Fluorides: 3 tpy
- Sulfuric acid mist: 7 tpy
- Hydrogen sulfide (H_2 S): 10 tpy
- Total reduced sulfur (including H_2 S): 10 tpy
- Reduced sulfur compounds (including H_2 S): 10 tpy
- Municipal waste combustor organics (measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans): 3.2×10^{-6} megagrams per year (3.5×10^{-6} tons per year)
- Municipal waste combustor metals (measured as particulate matter): 14 megagrams per year (15 tons per year)
- Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride): 36 megagrams per year (40 tons per year)
- Municipal solid waste landfill emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

2. "Significant" means, for purposes of this rule and in reference to a net emissions increase or the potential of a source to emit a regulated NSR pollutant not listed in paragraph "1," any emissions rate.

3. Notwithstanding paragraph "1," "significant," for purposes of this rule, means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within ten kilometers of a Class I area, and have an impact on such area equal to or greater than 1 ug/m^3 (24-hour average).

"Significant emissions increase" means, for a regulated NSR pollutant, an increase in emissions that is significant for that pollutant.

"State implementation plan" or *"SIP"* means the plan adopted by the state of Iowa and approved by the Administrator which provides for implementation, maintenance, and enforcement of such primary and secondary ambient air quality standards as they are adopted by the Administrator, pursuant to the Act.

"Stationary source" means any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant.

"Subject to regulation" means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally applicable regulation codified by the Administrator in 40 CFR Subchapter C (Air Programs) that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity, except that:

1. Greenhouse gases (GHGs), the air pollutant defined in 40 CFR §86.1818-12(a) (as amended on May 7, 2010) as the aggregate group of six greenhouse gases that includes carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, shall not be subject to regulation except as provided in paragraphs "4" and "5."

2. For purposes of paragraphs "3," "4," and "5," the term "tpy CO_2 equivalent emissions (CO_2e)" shall represent an amount of GHGs emitted and shall be computed as follows:

(a) Multiply the mass amount of emissions (tpy) for each of the six greenhouse gases in the pollutant GHGs by the associated global warming potential of the gas published at 40 CFR Part 98, Subpart

A, Table A-1, "Global Warming Potentials," (as amended on October 30, 2009). For purposes of this definition, prior to July 21, 2014, the mass of the greenhouse gas carbon dioxide shall not include carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms (including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material).

(b) Sum the resultant value from paragraph (a) for each gas to compute a tpy CO_2e.

3. The term "emissions increase," as used in this paragraph and in paragraphs "4" and "5," shall mean that both a significant emissions increase (as calculated using the procedures specified in 33.3(2)*"c"* through 33.3(2)*"h"*) and a significant net emissions increase (as specified in 33.3(1), in the definitions of "net emissions increase" and "significant") occur. For the pollutant GHGs, an emissions increase shall be based on tpy CO_2e and shall be calculated assuming the pollutant GHGs are a regulated NSR pollutant, and "significant" is defined as 75,000 tpy CO_2e rather than calculated by applying the value specified in 33.3(1), in paragraph "2" of the definition of "significant."

4. Beginning January 2, 2011, the pollutant GHGs are subject to regulation if:

(a) The stationary source is a new major stationary source for a regulated NSR pollutant that is not a GHG, and also will emit or will have the potential to emit 75,000 tpy CO_2e or more, or

(b) The stationary source is an existing major stationary source for a regulated NSR pollutant that is not a GHG, and also will have an emissions increase of a regulated NSR pollutant and an emissions increase of 75,000 tpy CO_2e or more; and

5. Beginning July 1, 2011, in addition to the provisions in paragraph "4," the pollutant GHGs shall also be subject to regulation:

(a) At a new stationary source that will emit or have the potential to emit 100,000 tpy CO_2e, or

(b) At an existing stationary source that emits or has the potential to emit 100,000 tpy $CO_2$2e, when such stationary source undertakes a physical change or change in the method of operation that will result in an emissions increase of 75,000 tpy CO_2e or more.

"Temporary clean coal technology demonstration project" means a clean coal technology demonstration project that is operated for a period of five years or less and that complies with the SIP and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after the project is terminated.

"Title V permit" means an operating permit under Title V of the Act.

"Volatile organic compounds" or *"VOC"* means any compound included in the definition of "volatile organic compounds" found at 40 CFR 51.100(s) as amended through January 21, 2009.

33.3(2) *Applicability.* The requirements of this rule (PSD program requirements) apply to the construction of any new "major stationary source" as defined in subrule 33.3(1) or any project at an existing major stationary source in an area designated as attainment or unclassifiable under Section 107(d)(1)(A)(ii) or (iii) of the Act. In addition to the provisions set forth in rules 567—33.3(455B) through 567—33.9(455B), the provisions of 40 CFR Part 51, Appendix W (Guideline on Air Quality Models) as amended through November 9, 2005, are adopted by reference.

a. The requirements of subrules 33.3(10) through 33.3(18) apply to the construction of any new major stationary source or the major modification of any existing major stationary source, except as this rule (PSD program requirements) otherwise provides.

b. No new major stationary source or major modification to which the requirements of subrule 33.3(10) through paragraph 33.3(18)*"e"* apply shall begin actual construction without a permit that states that the major stationary source or major modification will meet those requirements.

c. Except as otherwise provided in paragraphs 33.3(2)*"i"* and *"j,"* and consistent with the definition of "major modification" contained in subrule 33.3(1), a project is a major modification for a "regulated NSR pollutant" if it causes two types of emissions increases: a "significant emissions increase"; and a "net emissions increase" which is "significant." The project is not a major modification if it does not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.

d. The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to paragraphs *"e"* through *"h"* of this subrule. The procedure for calculating (before beginning actual construction) whether a significant net emissions increase will occur at the major stationary source (i.e., the second step of the process) is contained in the definition of "net emissions increase." Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

e. Actual-to-projected-actual applicability test for projects that only involve existing emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the "projected actual emissions" and the "baseline actual emissions" for each existing emissions unit equals or exceeds the significant amount for that pollutant.

f. Actual-to-potential test for projects that involve only construction of a new emissions unit(s). A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the "potential to emit" from each new emissions unit following completion of the project and the "baseline actual emissions" for a new emissions unit before the project equals or exceeds the significant amount for that pollutant.

g. Reserved.

h. Hybrid test for projects that involve multiple types of emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in paragraphs *"e"* through *"g"* of this subrule, as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant.

i. For any major stationary source with a PAL for a regulated NSR pollutant, the major stationary source shall comply with requirements under rule 567—33.9(455B).

j. Reserved.

33.3(3) *Ambient air increments.* The provisions for ambient air increments as specified in 40 CFR 52.21(c) as amended through November 29, 2005, are adopted by reference.

33.3(4) *Ambient air ceilings.* The provisions for ambient air ceilings as specified in 40 CFR 52.21(d) as amended through November 29, 2005, are adopted by reference.

33.3(5) *Restrictions on area classifications.* The provisions for restrictions on area classifications as specified in 40 CFR 52.21(e) as amended through November 29, 2005, are adopted by reference.

33.3(6) *Exclusions from increment consumption.* The provisions by which the SIP may provide for exclusions from increment consumption as specified in 40 CFR 51.166(f) as amended through November 29, 2005, are adopted by reference. The following phrases contained in 40 CFR 51.166(f) are not adopted by reference: "the plan may provide that," "the plan provides that," and "it shall also provide that." Additionally, the term "the plan" shall mean "SIP."

33.3(7) *Redesignation.* The provisions for redesignation as specified in 40 CFR 52.21(g) as amended through November 29, 2005, are adopted by reference.

33.3(8) *Stack heights.* The provisions for stack heights as specified in 40 CFR 52.21(h) as amended through November 29, 2005, are adopted by reference.

33.3(9) *Exemptions.* The provisions for allowing exemptions from certain requirements for PSD-subject sources as specified in 40 CFR 52.21(i) as amended through May 1, 2007, are adopted by reference.

33.3(10) *Control technology review.* The provisions for control technology review as specified in 40 CFR 52.21(j) as amended through November 29, 2005, are adopted by reference.

33.3(11) *Source impact analysis.* The provisions for a source impact analysis as specified in 40 CFR 52.21(k) as amended through November 29, 2005, are adopted by reference.

33.3(12) *Air quality models.* The provisions for air quality models as specified in 40 CFR 52.21(l) as amended through November 29, 2005, are adopted by reference.

33.3(13) *Air quality analysis.* The provisions for an air quality analysis as specified in 40 CFR 52.21(m) as amended through November 29, 2005, are adopted by reference.

33.3(14) *Source information.* The provisions for providing source information as specified in 40 CFR 52.21(n) as amended through November 29, 2005, are adopted by reference.

33.3(15) *Additional impact analyses.* The provisions for an additional impact analysis as specified in 40 CFR 52.21(o) as amended through November 29, 2005, are adopted by reference.

33.3(16) *Sources impacting federal Class I areas—additional requirements.* The provisions for sources impacting federal Class I areas as specified in 40 CFR 51.166(p) as amended through November 29, 2005, are adopted by reference. The following phrases contained in 40 CFR 51.166(p) are not adopted by reference: "the plan may provide that," "the plan shall provide that," "the plan shall provide" and "mechanism whereby."

33.3(17) *Public participation.*

a. The department shall notify all applicants within 30 days as to the completeness of the application or any deficiency in the application or information submitted. In the event of such a deficiency, the date of receipt of the application shall be the date on which the department received all required information.

b. Within one year after receipt of a complete application, the department shall:

(1) Make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.

(2) Make available in at least one location in each region in which the proposed source would be constructed a copy of all materials the applicant submitted, a copy of the preliminary determination, and a copy or summary of other materials, if any, considered in making the preliminary determination.

(3) Notify the public, by advertisement in a newspaper of general circulation in each region in which the proposed source would be constructed, of the application, of the preliminary determination, of the degree of increment consumption that is expected from the source or modification, and of the opportunity for comment at a public hearing as well as written public comment. At least 30 days shall be provided for public comment and for notification of any public hearing.

(4) Send a copy of the notice of public comment to the applicant, to the Administrator and to officials and agencies having cognizance over the location where the proposed construction would occur as follows: any other state or local air pollution control agencies; the chief executives of the city and county where the source would be located; any comprehensive regional land use planning agency; and any state, federal land manager, or Indian governing body whose lands may be affected by emissions from the source or modification.

(5) Provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source, alternatives to the proposed source or modification, the control technology required, and other appropriate considerations. At least 30 days' notice shall be provided for any public hearing.

(6) Consider all written comments submitted within a time specified in the notice of public comment and all comments received at any public hearing(s) in making a final decision on the approvability of the application. The department shall make all comments available for public inspection at the same locations where the department made available preconstruction information relating to the proposed source or modification.

(7) Make a final determination whether construction should be approved, approved with conditions, or disapproved.

(8) Notify the applicant in writing of the final determination and make such notification available for public inspection at the same locations where the department made available preconstruction information and public comments relating to the proposed source or modification.

c. Reopening of the public comment period.

(1) If comments submitted during the public comment period raise substantial new issues concerning the permit, the department may, at its discretion, take one or more of the following actions:

1. Prepare a new draft permit, appropriately modified;
2. Prepare a revised fact sheet;
3. Prepare a revised fact sheet and reopen the public comment period; or

4. Reopen or extend the public comment period to provide interested persons an opportunity to comment on the comments submitted.

(2) The public notice provided by the department pursuant to this rule shall define the scope of the reopening. Department review of any comments filed during a reopened comment period shall be limited to comments pertaining to the substantial new issues causing the reopening.

33.3(18) *Source obligation.*

a. Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the plan and any other requirements under local, state or federal law.

b. At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, the requirements of subrules 33.3(10) through 33.3(19) shall apply to the source or modification as though construction had not yet commenced on the source or modification.

c. Any owner or operator who constructs or operates a source or modification not in accordance with the application pursuant to the provisions in rule 567—33.3(455B) or with the terms of any approval to construct, or any owner or operator of a source or modification subject to the provisions in rule 567—33.3(455B) who commences construction after April 15, 1987 (the effective date of Iowa's PSD program), without applying for and receiving department approval, shall be subject to appropriate enforcement action.

d. Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The department may extend the 18-month period upon a satisfactory showing that an extension is justified. These provisions do not apply to the time between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

e. Reserved.

f. The following specific provisions shall apply to projects at existing emissions units at a major stationary source, other than projects at a source with a PAL, in circumstances in which a project is not part of a major modification, and the owner or operator elects to use the method for calculating projected actual emissions as specified in subrule 33.3(1), paragraphs "1" through "3" of the definition of "projected actual emissions."

(1) Before beginning actual construction of the project, the owner or operator shall document and maintain a record of the following information:

1. A description of the project;

2. Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and

3. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under paragraph "3" of the definition of "projected actual emissions" in subrule 33.3(1), an explanation describing why such amount was excluded, and any netting calculations, if applicable.

(2) No less than 30 days before beginning actual construction, the owner or operator shall meet with the department to discuss the owner's or operator's determination of projected actual emissions for the project and shall provide to the department a copy of the information specified in paragraph *"f."* The owner or operator is not required to obtain a determination from the department regarding the project's projected actual emissions prior to beginning actual construction.

(3) If the emissions unit is an existing electric utility steam generating unit, before beginning actual construction, the owner or operator shall provide a copy of the information set out in subparagraph (1) to the department. The requirements in subparagraphs (1), (2) and (3) shall not be construed to require the owner or operator of such a unit to obtain any determination from the department before beginning actual construction.

(4) The owner or operator shall:

1. Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions unit identified in subparagraph (1);

2. Calculate the annual emissions, in tons per year on a calendar-year basis, for a period of five years following resumption of regular operations and maintain a record of regular operations after the change, or for a period of ten years following resumption of regular operations after the change if the project increases the design capacity or potential to emit of that regulated NSR pollutant at such emissions unit (for purposes of this requirement, "regular" shall be determined by the department on a case-by-case basis); and

3. Maintain a written record containing the information required in this subparagraph.

(5) The written record containing the information required in subparagraph (4) shall be retained by the owner or operator for a period of ten years after the project is completed.

(6) If the unit is an existing electric utility steam generating unit, the owner or operator shall submit a report to the department within 60 days after the end of each year during which records must be generated under subparagraph (4) setting out the unit's annual emissions during the calendar year that preceded submission of the report.

(7) If the unit is an existing unit other than an electric utility steam generating unit, the owner or operator shall submit a report to the department if the annual emissions, in tons per year, from the project identified in subparagraph (1), exceed the baseline actual emissions, as documented and maintained pursuant to subparagraph (4), by an amount that is "significant" as defined in subrule 33.3(1) for that regulated NSR pollutant, and if such emissions differ from the preconstruction projection as documented and maintained pursuant to subparagraph (4). Such report shall be submitted to the department within 60 days after the end of such year. The report shall contain the following:

1. The name, address and telephone number of the major stationary source;

2. The annual emissions as calculated pursuant to subparagraph (4); and

3. Any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection).

g. The owner or operator of the source shall make the information required to be documented and maintained pursuant to paragraph *"f"* available for review upon request for inspection by the department or the general public pursuant to the requirements for Title V operating permits contained in 567—subrule 22.107(6).

33.3(19) *Innovative control technology.* The provisions for innovative control technology as specified in 40 CFR 51.166(s) as amended through November 29, 2005, are adopted by reference. The following phrases contained in 40 CFR 51.166(s) are not adopted by reference: "the plan may provide that" and "the plan shall provide that."

33.3(20) *Conditions for permit issuance.* Except as explained below, a permit may not be issued to any new "major stationary source" or "major modification" as defined in subrule 33.3(1) that would locate in any area designated as attainment or unclassifiable for any national ambient air quality standard pursuant to Section 107 of the Act, when the source or modification would cause or contribute to a violation of any national ambient air quality standard. A major stationary source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard:

	Averaging Time				
	Annual	24 hrs.	8 hrs.	3 hrs.	1 hr.
Pollutant	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
SO_2	1.0	5	———	25	———
PM_{10}	1.0	5	———	———	———
NO_2	1.0	———	———	———	———
CO	———	———	500	———	2000

A permit may be granted to a major stationary source or major modification as identified above if the major stationary source or major modification reduces the impact of its emissions upon air quality by obtaining sufficient emissions reductions to compensate for its adverse ambient air impact where the major stationary source or major modification would otherwise contribute to a violation of any national ambient air quality standard. This subrule shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that the source is located in an area designated under Section 107 of the Act as nonattainment for that pollutant.

33.3(21) *Administrative amendments.*

a. Upon request for an administrative amendment, the department may take final action on any such request and may incorporate the requested changes without providing notice to the public or to affected states, provided that the department designates any such permit revisions as having been made pursuant to subrule 33.3(21).

b. An administrative amendment is a permit revision that does any of the following:

(1) Corrects typographical errors;

(2) Corrects word processing errors;

(3) Identifies a change in name, address or telephone number of any person identified in the permit or provides a similar minor administrative change at the source; or

(4) Allows for a change in ownership or operational control of a source where the department determines that no other change in the permit is necessary, provided that a written agreement that contains a specific date for transfer of permit responsibility, coverage, and liability between the current permittee and the new permittee has been submitted to the department.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 9224B**, IAB 11/17/10, effective 12/22/10; **ARC 9906B**, IAB 12/14/11, effective 11/16/11]

567—33.4 to **33.8** Reserved.

567—33.9(455B) Plantwide applicability limitations (PALs). This rule provides an existing major source the option of establishing a plantwide applicability limitation (PAL) on emissions, provided the conditions in this rule are met. The provisions for a PAL as set forth in 40 CFR 52.21(aa) as amended through November 29, 2005, are adopted by reference, except that the term "Administrator" shall mean "the department of natural resources."

567—33.10(455B) Exceptions to adoption by reference. All references to Clean Units and Pollution Control Projects set forth in 40 CFR Sections 52.21 and 51.166 are not adopted by reference.

These rules are intended to implement Iowa Code chapter 455B.

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DIVISION B
DRINKING WATER

CHAPTER 40
SCOPE OF DIVISION—DEFINITIONS—FORMS—RULES OF PRACTICE

[Prior to 12/3/86, Water, Air and Waste Management [900]]

567—40.1(455B) Scope of division. The department conducts the public water supply program and establishes minimum standards for the construction of private water supply systems. The public water supply program includes the following: the establishment of drinking water standards, including maximum contaminant levels, treatment techniques, maximum residual disinfectant levels, action levels, monitoring, viability assessment, consumer confidence reporting, public notice requirements, public water supply system operator certification standards, environmental drinking water laboratory certification program, and a state revolving loan program consistent with the federal Safe Drinking Water Act, and the establishment of construction standards. The construction, modification and operation of any public water supply system requires a specific permit from the department. Certain construction permits are issued upon certification by a licensed professional engineer that a project meets standards, and, in certain instances, permits are issued by local authorities pursuant to 567—Chapter 9. Private water supplies are regulated by local boards of health.

Chapter 38 contains requirements for private water well construction permits, including test wells and monitoring wells.

Chapter 39 contains requirements for the proper closure or abandonment of wells.

Chapter 40 includes rules of practice, including designation of forms, applicable to the public in the department's administration of the subject matter of this division.

Chapter 41 contains the drinking water standards and specific monitoring requirements for the public water supply program.

Chapter 42 contains the public notification, public education, consumer confidence reporting, and record-keeping requirements for the public water supply program.

Chapter 43 contains specific design, construction, fee, operating, and operation permit requirements for the public water supply program.

Chapter 44 contains the drinking water state revolving fund program for the public water supply program.

Chapter 49 contains the nonpublic water supply well requirements.

Chapters 50 to 52 contain the provisions for water withdrawal and allocation.

Chapter 55 contains the provisions for public water supply aquifer storage and recovery.

Chapter 81 contains the provisions for the certification of public water supply system operators.

Chapter 82 contains the provisions for the certification of water well contractors.

Chapter 83 contains the provisions for the certification of laboratories to provide environmental testing of drinking water supplies.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—40.2(455B) Definitions.

"Act" means the Safe Drinking Water Act as amended (42 U.S.C. 300f et seq.).

"Action level" is the concentration of lead or copper in water which determines, in some cases, the treatment requirements that a water system is required to complete.

"Acute health effect" means the health effect of a contaminant which is an immediate rather than a long-term risk to health.

"Animal confinement" means a lot, yard, corral, or similar structure in which the concentration of livestock or poultry is such that a vegetative cover is not maintained.

"Animal pasturage" means a fenced area where vegetative cover is maintained and in which animals are enclosed.

"Animal waste" means animal wastes consisting of excreta, leachings, feed losses, litter, washwaters or other associated wastes.

"Animal waste stockpiles" means the stacking, composting or containment of animal wastes.

"Animal waste storage basin or lagoon" means a fully or partially excavated or diked earthen structure used for containing animal waste, including earthen sideslopes or floor.

"Animal waste storage tank" means a completely fabricated structure, with or without a cover, either formed in place or transported to the site, used for containing animal wastes.

"Antisiphon device" means a device which will prevent back siphonage by means of a relief valve which automatically opens to the atmosphere, preventing the creation of subatmospheric pressure within a pipe, thereby preventing water from reversing its flow.

"Authority" means the Iowa finance authority (IFA) as established by Iowa Code chapter 16.

"Backflow" means the flow of water or other liquids, mixtures, or substances into the distribution system of a potable water supply from any source other than its permitted source.

"Backflow preventer" is a device or means to prevent backflow into a potable water system.

"Back siphon" means the flowing back of used, contaminated, or polluted water, from a plumbing fixture or vessel as a result of negative or subatmospheric pressure within the distribution system.

"Bag filters" means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside.

"Bank filtration" means a water treatment process that uses a well to recover surface water that has naturally infiltrated into groundwater through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

"Best available technology" or *"BAT"* means the best technology, treatment techniques, or other means which the state finds, after examination, for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration).

"Cartridge filters" means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

"Cistern" means a tank in which rainwater from roof drains is stored.

"Coagulation" means a process using coagulation chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

"Combined distribution system (CDS)" means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

"Commission" means the environmental protection commission of the state of Iowa.

"Community water system (CWS)" means a public water supply system which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Compliance cycle" means the nine-year (calendar year) cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year cycle begins January 1, 1993, and ends December 31, 2001; the second begins January 1, 2002, and ends December 31, 2010; the third begins January 1, 2011, and ends December 31, 2019, and continues every nine years thereafter.

"Compliance period" means a three-year (calendar year) period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993, to December 31, 1995; the second from January 1, 1996, to December 31, 1998; the third from January 1, 1999, to December 31, 2001, and continues every three years thereafter.

"Composite correction program (CCP)" is a systematic, comprehensive procedure that identifies and corrects the unique combination of factors, in the areas of design, operation, maintenance, and administration, that limit the performance of a filtration plant. The CCP is comprised of two elements: comprehensive performance evaluation, which is the evaluation phase, and comprehensive technical assistance, which is the performance improvement phase.

"Comprehensive performance evaluation (CPE)" is a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance

practices. The CPE is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purposes of compliance with surface water or influenced groundwater treatment plant requirements pursuant to 567—Chapters 41, 42, and 43, the comprehensive performance evaluation must consist of at least the following components: assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report.

"Comprehensive technical assistance (CTA)" is the performance improvement phase of the composite correction plan that is implemented if the comprehensive performance evaluation results indicate improved performance potential by a filtration plant, in which the system must identify and systematically address plant-specific factors.

"Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

"Consecutive public water supply" means an active public water supply which purchases or obtains all or a portion of its water from another, separate public water supply, also called a wholesale system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

"Conservation easements" means an interest in land that entitles a person to use the land possessed by another (affirmative easement), or to restrict uses of the land subject to the easement (negative easement). A conservation easement restricts the landowner to uses that are compatible with resource conservation.

"Contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

"Contiguous" means directly adjacent or touching along all or most of one side of a legally defined piece of property. Tracts of land involved in the same operation or water supply and separated only by roads, railroads, or bike trails are deemed contiguous tracts.

"Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

"Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

"Corrosive water" means a water which due to its physical and chemical characteristics may cause leaching or dissolving of the constituents of the transporting system in which it is contained.

"Cross connection" means any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce into the potable system any used water, industrial fluid, gas, or other substance other than the intended potable water with which the system is supplied.

"Customers" in consumer confidence reports are defined as billing units or service connections to which water is delivered by a community water system.

"Deep well" means a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Department" means the Iowa department of natural resources, which has jurisdiction over all nontribal public water systems in Iowa.

"Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which (1) a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and (2) while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

"Direct filtration" means a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

"Director" means the director of the Iowa department of natural resources or a designee.

"Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment process or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

"Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

"Disinfection profile" is a summary of *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in 567—paragraph 43.9(2)*"b"*and 567—subrule 43.10(2).

"Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

"Drinking water state revolving fund" or *"DWSRF"* means the department-administered fund intended to develop drinking water revolving loans to help finance drinking water infrastructure improvements, source water protection, system technical assistance, and other activities intended to encourage and facilitate public water supply system rule compliance and public health protection established by Iowa Code sections 455B.291 to 455B.299.

"DWSRF funds" means the combination of a particular fiscal year's federal capitalization grant appropriation plus the 20 percent state of Iowa match and any additional funds made available through the program.

"Effective corrosion inhibitor residual" means a concentration of corrosion inhibitor sufficient to form a passivating film on the interior walls of a pipe.

"Eligible cost" means the cost of all labor, material, machinery, equipment, loan initiation and loan service fees, project planning, design and construction engineering services, legal fees and expenses directly related to the project, capitalized interest during construction of the project, and all other expansion, construction, and rehabilitation of all or part of a project included in the funding request placed on the draft intended use plan as a fundable project, subject to approval by the commission.

"Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

"Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening.

"Federal cross-cutters" means the federal laws and authorities that apply to projects funded through the DWSRF.

"Filter profile" is a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

"Filtration" means a process for removing particulate matter from water by passage through a porous media.

"Finished water" means water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion chemicals).

"First draw sample" means a one-liter sample of tap water, collected in accordance with 567—paragraph 41.4(1)*"c"* that has been standing in plumbing pipes at least six hours and is collected without flushing the tap.

"Fiscal year" means the federal fiscal year starting October 1 and ending September 30.

"Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

"Flowing stream" means a course of running water flowing in a definite channel.

"GAC10" means granular activated carbon filter beds with an empty-bed contact time of ten minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 is 120 days when used as a best available technology for compliance

with the maximum contaminant level locational running annual average for total trihalomethanes and haloacetic acids.

"GAC20" means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

"Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

"Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

"Haloacetic acids (HAA5)" means the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

"Halogen" means one of the chemical elements chlorine, bromine or iodine.

"Health advisory (HA)" means a group of levels set by EPA below which no harmful health effect is expected from a given contaminant in drinking water. The HAs used by the department are listed in the most current edition of the EPA "Drinking Water Regulations and Health Advisories" bulletin. The lifetime HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects over a lifetime of exposure, with a margin of safety. The long-term HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects up to approximately seven years (10 percent of an individual's lifetime of exposure), with a margin of safety.

"Human consumption" means water used as part of or in connection with drinking; washing; food processing or incidental to commercial food preparation, such as: water used in beverages or other food items; ice used in drinks or in salad bars; water for washing of vegetables or other food items; water used for washing dishes; pans or utensils used in food preparation or service; water used for cleanup and washing of food preparation or service areas; water for bathing, showering, hand washing, or oral hygiene purposes. Human consumption does not include: water for production of packaged or bulk food products regulated by other state or federal regulatory agencies, such as livestock slaughtering or bottled or canned food and beverages; cooling water; industrial or commercial wash waters used for nonfood products; irrigation water; water used in toilets or urinals.

"Impoundment" means a reservoir, pond, or lake in which surface water is retained for a period of time, ranging from several months upward, created by constructing a barrier across a watercourse and used for storage, regulation or control of water.

"Influenced groundwater (IGW)" means any groundwater which is under the direct or indirect influence of surface water, as determined by the presence of (1) significant occurrence of insects or other macroorganisms, algae or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*; or (2) significant and relatively rapid shifts in water characteristics such as turbidity (particulate content), temperature, conductivity, or pH which correlate to climatological or surface water conditions, or other parameters as specified in 567—43.5(455B).

"Initial compliance period" means the first full three-year compliance period of a compliance cycle.

"Intended use plan (IUP)" means a plan identifying the intended uses of funds available for loans in the DWSRF for each fiscal year as described in Section 1452 of the Safe Drinking Water Act.

"Lake or reservoir" means a natural or man-made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.

"Large water system" means a water system that serves more than 50,000 persons.

"Lead free," when used with respect to solder and flux, refers to solders and flux containing not more than 0.2 percent lead; when used with respect to pipes and pipe fittings, refers to pipes and pipe fittings containing not more than 8.0 percent lead; and, when used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion, refers to fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300-g-6(e).

"Lead service line" means a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting which is connected to such lead line. A lead gooseneck is not considered a lead service line unless it exceeds 10 feet.

"Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called legionnaires' disease.

"Locational running annual average (LRAA)" means the average of the analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

"Maintenance" means the replacement of equipment or materials that are necessary to maintain the operation of the public water supply system but do not alter capacity, water quality or treatment method or effectiveness.

"Man-made beta particle and photon emitters" means all radionuclides emitting beta particles or photons or both listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium-232, uranium-235 and uranium-238.

"Maximum contaminant level" means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

"Maximum contaminant level goal (MCLG)" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MCLGs are nonenforceable health goals.

"Maximum residual disinfectant level (MRDL)" means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.

"Maximum residual disinfectant level goal (MRDLG)" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

"Medium-size water system" means a water system that serves greater than 3,300 and less than or equal to 50,000 persons.

"Membrane filtration" means a pressure- or vacuum-driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

"Nonacute health effect" means the health effect of a contaminant which is a long-term rather than immediate risk to health.

"Noncommunity water system" means a public water system that is not a community water system. A noncommunity water system is either a "transient noncommunity water system (TNC)" or a "nontransient noncommunity water system (NTNC)."

"Nontransient noncommunity water system" or *"NTNC"* means a public water system other than a community water system which regularly serves at least 25 of the same persons four hours or more per day, for four or more days per week, for 26 or more weeks per year. Examples of NTNCs are schools, day-care centers, factories, offices and other public water systems which provide water to a fixed population of 25 or more people. In addition, other service areas, such as hotels, resorts, hospitals and restaurants, are considered as NTNCs if they regularly serve at least 25 or more of the same persons for four or more hours per day, for four or more days per week, for 26 or more weeks of the year.

"Optimal corrosion control treatment" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the water system to violate any drinking water standards (567—Chapters 40 to 43).

"Performance evaluation sample" means a reference sample provided to a laboratory for the purpose of demonstrating that a laboratory can successfully analyze the sample within limits of performance specified by the department. The true value of the concentration of the reference material is unknown to the laboratory at the time of analysis.

"Picocurie (pCi)" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

"Plant intake" means the works or structures at the head of a conduit through which water is diverted from a surface water source (e.g., river, reservoir, or lake) into the treatment plant.

"Point of disinfectant application" is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff.

"Point-of-entry treatment device (POE)" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

"Point-of-use treatment device (POU)" is a treatment device applied to a single tap or multiple taps used for the purpose of reducing contaminants in drinking water at those taps, but is not intended to treat all of the water in the facility.

"Population served" means the total number of persons served by a public water supply that provides water intended for human consumption. For municipalities which serve only the population within their incorporated boundaries, it is the last official U.S. census population (or officially amended census population). For all other community public water supply systems, it is either the actual population counted which is verifiable by the department, or population as calculated by multiplying the number of service connections by an occupancy factor of 2.5 persons per service connection. For municipalities which also serve outside their incorporated boundaries, the served population must be added to the official census population determined either by verifiable count or by the 2.5 persons per service connection occupancy factor. For nontransient noncommunity (NTNC) and transient noncommunity (TNC) systems, it is the average number of daily employees plus the average number of other persons served such as customers or visitors during the peak month of the year regardless if each person actually uses the water for human consumption. Where a system provides water to another public water supply system (consecutive public water supply system) which is required to have an operation permit, the population of the recipient water supply shall not be counted as a part of the water system providing the water. Community and nontransient noncommunity public water supply systems will pay their operation permit fees based upon the population served.

"Presedimentation" means a preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

"Privy" means a structure used for the deposition of human body wastes.

"Project" includes the planning, design, construction, alteration or extension of any public water supply system but does not include the maintenance of a system.

"Project priority list" means the list of projects in priority order that may qualify for DWSRF loan assistance contained in the IUP document prepared pursuant to rule 567—44.8(455B). The priority list shall identify all projects eligible for funding and the points assigned to each project pursuant to 567—subrule 44.7(7).

"Public water supply system control" is defined as one of the following forms of authority over a service line: authority to set standards for construction, repair, or maintenance of the service line; authority to replace, repair, or maintain the service line; or ownership of the line. Contaminants added to the water under circumstances controlled by the water consumer or user, with the exception of those contaminants resulting from the corrosion of piping and plumbing caused by water quality, are excluded from this definition of control.

"Public water supply system (PWS)" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A public water system is either a "community water system" or a "noncommunity water system."

"Regional water system" means a public water supply system in which the projected number of service connections in at least 50 percent of the length of the distribution system does not average more than eight service connections per linear mile of water main.

"Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem" (mrem) is 1/1000 of a rem.

"Repeat compliance period" means any subsequent compliance period after the initial compliance period.

"Residual disinfectant concentration" ("C" in CT calculations) means the concentration of disinfectant measured in mg/l in a representative sample of water.

"Sanitary sewer pipe" means a sewer complying with the department's standards for sewer construction.

"Sanitary survey" means a review and on-site inspection conducted by the department of the water source, facilities, equipment, operation and maintenance and records of a public water supply system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water and identifying improvements necessary to maintain or improve drinking water quality.

"SDWA" means the Safe Drinking Water Act.

"Sedimentation" means a water treatment process for removal of solid particles from a suspension before filtration by gravity or separation.

"Septic tank" means a watertight tank which receives sewage.

"Service connections" means the total number of active and inactive service lines originating from a water distribution main for the purpose of delivering water intended for human consumption. For municipalities, rural water districts, mobile home parks, housing developments, and similar facilities, this includes, but is not limited to, occupied and unoccupied residences and buildings, provided that there is a service line connected to the water main (or another service line), and running onto the property. For rental properties which are separate public water supply systems, this includes, but is not limited to, the number of rental units such as apartments. Connections to a system that delivers water by a constructed conveyance other than a pipe are excluded from the definition, if:

1. The water is used exclusively for purposes other than human consumption;
2. The department determines that alternative water to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulation is provided for human consumption; or
3. The department determines that the water provided for human consumption is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

"Service line sample" means a one-liter sample of water, collected in accordance with 567—paragraph 41.4(1)*"c"* for the purpose of determining the concentration of lead and copper which has been standing for at least six hours in a service line.

"Shallow well" means a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Significant deficiency" includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

"Significant noncompliance" means the failure to comply with any national primary drinking water standard as adopted by the state of Iowa according to criteria established by the administrator of the federal Environmental Protection Agency.

"Single-family structure" means a building constructed as a single-family residence that is currently used as either a residence or a place of business.

"Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/h (0.02 ft/min)) resulting in substantial particulate removal by physical and biological mechanisms.

"Small water system" means a water system that serves 3,300 persons or fewer.

"Special irrigation district" means an irrigation district in existence prior to May 18, 1994, that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system comply with numbered paragraphs "2" and "3" in the definition of "service connections."

"Standard methods" means "Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 1015 15th Street N.W., Washington, DC 20005.

"Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

"Standard specifications" means specifications submitted to the department for use as a reference in reviewing future plans for proposed water main construction.

"Supplier of water" means any person who owns or operates a public water supply system.

"Surface water" means all water which is open to the atmosphere and subject to surface runoff.

"SUVA" means Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (in m^{-1}) by its concentration of dissolved organic carbon (in mg/L).

"Ten States Standards" means the "Recommended Standards for Water Works," 2007 edition as adopted by the Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

"Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

"Total organic carbon (TOC)" means total organic carbon in milligrams per liter, measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

"Total trihalomethanes (TTHM)" means the sum of the concentration in milligrams per liter of the trihalomethane compounds trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform), rounded to two significant figures.

"Transient noncommunity water system (TNC)" means a noncommunity water system that does not regularly serve at least 25 of the same persons over six months per calendar year.

"Treatment technique (TT)" means a treatment process required to minimize the level of a contaminant in drinking water. A treatment technique is specified in cases where it is not technically or economically feasible to establish an MCL, and it is an enforceable procedure or level of technological performance which public water systems must follow to ensure control of a contaminant.

"Trihalomethane (THM)" means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

"Two-stage lime softening" means a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

"Uncovered finished water storage facility" means a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere. Such facilities are prohibited.

"Unregulated contaminant" means a contaminant for which no MCL has been set, but which does have federal monitoring requirements for certain public water systems set forth in CFR Title 40, Part 141.40, and additional reporting requirements in rule 567—42.3(455B).

"Viability" means the technical, financial, and managerial ability to comply with applicable national primary drinking water standards as adopted by the state of Iowa. Viability is the ability of a system to remain in compliance insofar as the requirements of the SDWA.

"Virus" means a virus of fecal origin which is infectious to humans by waterborne transmission.

"Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the Iowa department of public health.

"Water distribution system" means that portion of the water supply system in which water is conveyed from the water treatment plant or other supply point to the premises of the consumer, including any storage facilities and pumping stations.

"Water main pipe" means a water main complying with the department's standards for water main construction.

"Wholesale system" means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—40.3(17A,455B) Forms. The following forms are used by the public to apply for department approvals and to report on activities related to the public water supply program of the department. All forms may be obtained from the Environmental Services Division, Administrative Support Station, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319-0034. Properly completed application forms shall be submitted to the Water Supply Section, Environmental Services Division. Water Supply System Monthly and Other Operation Reporting forms shall be submitted to the appropriate field office (see 567—subrule 42.4(3)). Properly completed laboratory forms (reference 567—Chapter 83) shall be submitted to the State Hygienic Laboratory or as otherwise designated by the department.

40.3(1) *Construction permit application forms.* Schedules "1a" through "16d" are required.

Schedule No.	Name of Form	Form Number
"1a"	General Information	542-3178
"lb"	Minor Water Main Construction Permit	542-3151
"lc"	Fee Schedule	542-3179
"2a"	Water Mains, General	542-3030
"2b"	Water Mains, Specifications	542-3031
"2c"	Notification of Minor Water Main Construction	542-3152
"3a"	Water System, Preliminary Data	542-3032
"3b"	Water Quality Data	542-3029
"3c"	Surface Water Quality Data	542-3028
"4"	Site Selection	542-3078
"5a"	Well Construction	542-1005
"5b"	Well Appurtenances	542-3026
"5c"	Well Profile	542-1006
"5d"	Surface Water Supply	542-3139
"6a"	Distribution Water Storage Facilities	542-3140
"6b"	Distribution Pumping Station	542-3141
"7"	Schematic Flow Diagram	542-3142
"8"	Aeration	542-3143
"9"	Clarification/Sedimentation	542-3144
"10"	Suspended Solids Contact	542-3145
"11"	Cation Exchange Softening	542-3146
"12"	Filters	542-3147

Schedule No.	Name of Form	Form Number
"13a"	Chemical Addition	542-3141
"13b"	Dry Chemical Addition	542-3130
"13c"	Gas Chlorination	542-3131
"13d"	Fluoridation	542-3132
"13e"	Sampling and Tests	542-3133
"14"	Pumping Station	542-3134
"15"	Process Water Storage Facilities	542-3135
"16a"	Wastewater, General	542-3136
"16b"	Waste Treatment Ponds	542-3137
"16c"	Filtration and Mechanical	542-3138
"16d"	Discharge to Sewer	542-3103

40.3(2) *Operation permit application forms.*

a. Form 13-1 — community water supply

b. Form 13-2 — noncommunity water supply

40.3(3) *Water supply reporting forms.*

a.	Form 14 — plant operation	542-3104
b.	Form 15 — analyses by certified laboratories	
(1)	Individual bacterial analysis reporting — Form 15-la	542-3195
(2)	Summary bacterial analysis reporting — Form 15-lb	542-3196
(3)	Chemical analysis reporting — Form 15-2	542-3166
(4)	Corrosivity analysis reporting — Form 15-3	542-3193

40.3(4) *Laboratory certification application forms.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—40.4(17A,455B) Public water supply construction permit application procedures.

40.4(1) *General procedures.* Applications for written approval from the department for any new construction or for reconstruction pursuant to 567—Chapter 43 shall consist of complete plans and specifications, application fee, and appropriate water supply construction permit application schedules. Upon review, the department will issue a construction permit for approval of a project if the review shows that the project meets all departmental design standards in accordance with 567—Chapter 43. Approval of a project which does not meet all department design standards will be denied unless a variance as provided by 567—paragraph 43.3(2)*"b"* is granted. A variance may be requested at the time plans and specifications are submitted or after the design discrepancy is pointed out to the applicant.

The department may review submitted project plans and specifications and provide comments and recommendations to the applicant. Departmental comments and recommendations are advisory, except when departmental review determines that a facility does not comply with the plans or specifications as approved by the department or comply with the design standards pursuant to the criteria for certification of project design. The owner of the system must correct the deficiency in a timely manner as set forth by the department.

40.4(2) *Public water sources and below-ground level water storage facilities—site survey.* For public water sources and for below-ground level finished water storage facilities, a site survey and approval must be made by the department. The manner and procedures for applying for and processing a site survey are the same as in 40.4(1) except that the following information must be submitted by the applicant's engineer.

a. A preliminary engineering report or a cover letter which contains a brief description of the proposed source or storage facility and assurance that the project is in conformance with the long-range planning of the area.

b. Completed Schedule 1a — General Information

c. Completed Schedule 4 — Water Supply Facility Site Selection

d. A detailed map showing all potential sources of contamination (see 567—Chapter 43, Table A) within:

(1) 1,000 feet of a proposed well location. The scale shall not be smaller than 1 inch = 200 feet.

(2) 200 feet of a proposed below-ground level finished water storage facility.

(3) 2,500 feet from a proposed surface water source and a plat showing all facilities more than 2,500 feet from an impoundment (within the drainage area) that may be potential sources of contamination. The scale shall not be smaller than 1 inch = 660 feet.

(4) Six miles upstream of a proposed river intake.

40.4(3) *Modifications of an approved water supply construction project.* Persons seeking to make modifications to a water supply construction project after receiving a prior construction permit from the department shall submit an addendum to plans and specifications, a change order or revised plans and specifications at least 30 days prior to planned construction, and the appropriate fee. The department shall review the submitted material within 30 days of submission and shall issue a supplemental permit if the proposed modifications meet departmental standards.

40.4(4) *Certification of project design.* A permit shall be issued for the construction, installation or modification of a public water supply system or part of a system or for a water supply distribution system extension if a qualified, licensed professional engineer certifies that the plans and specifications comply with federal and state laws and regulations or that a variance to standards has been granted by the department. Refer to Schedule 1a.

567—40.5(17A,455B) Public water supply operation permit application procedures. A person requesting a water supply operation permit pursuant to 567—43.2(455B) must complete the appropriate application form, which will be provided by the department. Upon receipt of a completed application, the department will review the application and, if approved, will prepare and issue a water supply operation permit or draft permit, as applicable, and transmit it to the applicant. An annual operation fee pursuant to 567—subrule 43.2(1) is due by September 1 of each year. A permit or renewal will be denied when the applicant does not meet one or more requirements for issuance or renewal of this permit. An operation permit may be denied for any of the following reasons: system failed to pay the operation fee; system is not viable; system is not in compliance with the applicable maximum contaminant levels, treatment techniques, or action levels; system is in significant noncompliance with the provisions of 567—Chapter 41, 42, or 43.

567—40.6(455B) Drinking water state revolving fund loan application procedures. A person requesting a drinking water state revolving fund loan pursuant to 567—44.7(455B) must complete the appropriate application form, which will be provided by the department. The department will review the application package pursuant to 567—44.9(455B). Eligible projects will be ranked according to priority, with the highest-ranked projects receiving funding priority.

567—40.7(455B) Viability assessment procedures. A person required to complete a viability assessment pursuant to 567—43.8(455B) must submit the appropriate information as outlined in 567—43.8(455B) to the department. Self-assessment worksheets which can be used to prepare the viability assessment are available from the Water Supply Section, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319-0034.

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

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◊ Two or more ARCs

1 Effective date of definitions "Population served" and "Service connections" and rule 40.5(17A,455B) delayed until adjournment of the 1995 General Assembly by the Administrative Rules Review Committee at its meeting held March 13, 1995.

CHAPTER 41
WATER SUPPLIES

[These rules transferred from Health Department, 1971 IDR (Title II, Chs 1 and 2)]
[Prior to 7/1/83, DEQ Ch 22]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—41.1(455B) Primary drinking water regulations—coverage. 567—Chapters 40 through 44 and 83 shall apply to each public water supply system, unless the public water supply system meets all of the following conditions:

1. Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);
2. Obtains all of its water from, but is not owned or operated by, a public water supply system to which such regulations apply;
3. Does not sell water to any person; and
4. Is not a carrier which conveys passengers in interstate commerce.

567—41.2(455B) Biological maximum contaminant levels (MCL) and monitoring requirements.

41.2(1) *Coliforms, fecal coliforms and E. coli.*

a. Applicability. These rules apply to all public water supply systems.

b. Maximum contaminant levels (MCL) for total coliforms, fecal coliforms, and E. coli. The MCL is based on the presence or absence of total coliforms in a sample.

(1) Nonacute coliform bacteria MCL.

1. For a system which collects 40 samples or more per month, no more than 5.0 percent of the samples collected during a month may be total coliform-positive. A nonacute total coliform bacteria MCL violation occurs when more than 5.0 percent of routine and repeat samples collected during a month are total coliform-positive, but are not fecal coliform-positive or *E. coli*-positive.
2. For a system which collects less than 40 samples per month, no more than one sample collected during a month may be total coliform-positive. A nonacute total coliform bacteria MCL violation occurs when two or more routine and repeat samples collected during a month are total coliform-positive, but are not fecal coliform-positive or *E. coli*-positive.

(2) Acute coliform bacteria MCL. Any fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in 567—42.1(455B), this is a violation that may pose an acute risk to health.

(3) MCL compliance period. Compliance of a system with the MCL for total coliforms in 41.2(1)*"b"*(1) and (2) is based on each month in which the system is required to monitor for total coliforms.

(4) Compliance determination. Results of all routine and repeat samples not invalidated by the department or laboratory must be included in determining compliance with the MCL for total coliforms. Repeat samples must be analyzed at the same laboratory as the corresponding original routine sample(s), unless written approval for use of a different laboratory is granted by the department.

c. Monitoring requirements.

(1) Routine total coliform monitoring.

1. Public water supply systems must collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan. The plan shall be reviewed or updated by the public water supply system every two years and shall be retained on file at the facility. Major elements of the plan shall include, but are not limited to, a map of the distribution system, notation or a list of routine sample location(s) for each sample period, resample locations for each routine sample, and a log of samples taken. The plan must be made available to the department upon request and during sanitary surveys and must be revised by the system as directed by the department.
2. The public water supply system must collect samples at regular time intervals throughout the month, except that a system which uses only groundwater that is not under the direct influence of surface

water and which is required to collect five or fewer routine coliform bacteria samples per month may collect all required samples on a single day if they are taken from different sites. A system that uses only groundwater and adds a chemical disinfectant or provides water with a disinfectant must measure the residual disinfectant concentration at the same points in the distribution system and at the same time as total coliform bacteria samples are collected. A system that uses surface water or IGW must comply with the requirements specified in 567—paragraph 43.5(4)*"b"*(2)"2." The system shall report the residual disinfectant concentration to the laboratory with the bacteria sample and comply with the applicable reporting requirements of 567—subrule 42.4(3).

3. Community water systems and specific noncommunity systems. The monitoring frequency for total coliforms for community water systems and noncommunity water systems serving schools, to include preschools and child care facilities or serving public water systems owned or managed by state agencies, such as state parks and rest areas, is based on the population served by the system as listed below, until June 29, 1994. Public water systems which do not collect five or more routine samples each month must undergo an initial sanitary survey by June 29, 1994. After June 29, 1994, the monitoring frequency for systems serving less than 4,101 persons shall be a minimum of five routine samples per month unless the department determines, after completing sanitary surveys (at intervals not to exceed five years), that the monitoring frequency may continue as listed below. The monitoring frequency for regional water systems shall be as listed in 41.2(1)*"c"*(1)"4" but in no instance less than that required by the population equivalent served.

TOTAL COLIFORM MONITORING FREQUENCY FOR COMMUNITY WATER SYSTEMS AND NONCOMMUNITY (SCHOOL) WATER SYSTEMS

Population Served	Minimum Number of Samples Per Month
25 to 1,000*	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100

130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270

*Includes public water supply systems which have at least 15 service connections, but serve fewer than 25 persons

4. Regional water systems. The supplier of water for a regional water system as defined in rule 567—40.2(455B) shall sample for coliform bacteria at a frequency indicated in the following chart until June 29, 1994, but in no case shall the sampling frequency for a regional water system be less than as set forth in 41.2(1)*"c"*(1)"3" based on the population equivalent served. Public water systems which do not collect five or more routine samples each month must undergo an initial sanitary survey by June 29, 1994. After June 29, 1994, the monitoring frequency of systems with less than 82 miles of pipe shall be a minimum of five routine samples per month unless the department determines, after completing sanitary surveys (at intervals not exceeding five years), that the monitoring frequency may continue as listed below. The following chart represents sampling frequency per miles of distribution system and is determined by calculating one-half the square root of the miles of pipe.

TOTAL COLIFORM MONITORING FREQUENCY FOR
REGIONAL WATER SYSTEMS

Miles of Pipe	Minimum Number of Samples Per Month
0 - 9	1
10 - 25	2
26 - 49	3
50 - 81	4
82 - 121	5
122 -169	6
170 - 225	7
226 - 289	8
290 - 361	9
362 - 441	10
442 - 529	11
530 - 625	12
626 - 729	13
730 - 841	14
842 - 961	15
962 - 1,089	16
1,090 - 1,225	17
1,226 - 1,364	18
1,365 - 1,521	19
1,522 - 1,681	20
1,682 - 1,849	21
1,850 - 2,025	22
2,026 - 2,209	23

2,210 - 2,401	24
2,402 - 2,601	25
2,602 - 3,249	28
3,250 - 3,721	30
3,722 - 4,489	33
greater than 4,489	35

5. Noncommunity water systems. The monitoring frequency for total coliforms for noncommunity water systems is as listed in the four unnumbered paragraphs below until June 29, 1999. Public water systems which do not collect five or more routine samples each month must undergo an initial sanitary survey by June 29, 1999. After June 29, 1999, the minimum number of samples shall be five routine samples per month unless the department determines, after completing sanitary surveys (at intervals not exceeding five years), that the monitoring frequency may continue as listed below.A noncommunity water system using only groundwater (except groundwater under the direct influence of surface water, as defined in 567—paragraph 43.5(1)*"b"*) and serving 1,000 persons or fewer must monitor each calendar quarter that the system provides water to the public. Systems serving more than 1,000 persons during any month must monitor at the same frequency as a like-sized community water system, as specified in 41.2(1)*"c"*(1)"3."

A noncommunity water system using surface water, in total or in part, must monitor at the same frequency as a like-sized community water system, as specified in 41.2(1)*"c"*(1)"3," regardless of the number of persons it serves.

A noncommunity water system using groundwater under the direct influence of surface water, as defined in 567—paragraph 43.5(1)*"b,"* must monitor at the same frequency as a like-sized community water system, as specified in 41.2(1)*"c"*(1)"3," regardless of the number of persons it serves. The system must begin monitoring at this frequency beginning six months after the department determines that the groundwater is under the direct influence of surface water.

A noncommunity water system serving schools or daycares must monitor at the same frequency as a like-sized community water system, as specified in 41.2(1)*"c"*(1)"3."

A noncommunity water system owned or managed by a state agency, such as a park or rest area, must monitor at the same frequency as a like-sized community water system, as specified in 41.2(1)*"c"*(1)"3."

6. If the department, on the basis of a sanitary survey or monitoring results history, determines that some greater frequency of monitoring is more appropriate, that frequency shall be the frequency required under these regulations. This frequency shall be confirmed or changed on the basis of subsequent surveys.

7. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in 41.2(1)*"b."* Repeat samples taken pursuant to 41.2(1)*"c"*(2) are not considered special purpose samples and must be used to determine compliance with the MCL for total coliforms in 41.2(1)*"b."*

(2) Repeat total coliform monitoring.

1. Repeat sample time limit and numbers. If a routine sample is total coliform-positive, the public water supply system must collect a set of repeat samples within 24 hours of being notified of the positive result and in no case more than 24 hours after being notified by the department. A system which collects more than one routine sample per month must collect no fewer than three repeat samples for each total coliform-positive sample found. A system which collects one routine sample per month or fewer must collect no fewer than four repeat samples for each total coliform-positive sample found. The department may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. In those cases, the public water supply system must report the circumstances to the department no later than the end of the next business day after receiving the notice to repeat sample and initiate the action directed by the department. In the case of an extension, the department will specify how much time the system has to collect the repeat samples.

2. Repeat sample location(s). The system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or at the first or last service connection, the system will be required to collect the repeat samples from the original sampling site and locations only upstream or downstream.

3. The system must collect all repeat samples on the same day, except that the department may allow a system with a single service connection to collect the required set of repeat samples over a four-day period. "System with a single service connection" means a system which supplies drinking water to consumers through a single service line.

4. Additional repeat sampling. If one or more repeat samples in the set is total coliform-positive, the public water supply system must collect an additional set of repeat samples in the manner specified in 41.2(1)*"c"*(2)"1" to 41.2(1)*"c"*(2)"3." The system must repeat this process until either total coliforms are not detected in one complete set of repeat samples or the system determines that the MCL for total coliforms in 41.2(1)*"b"* has been exceeded, notifies the department, and provides public notification to its users in accordance with 567—42.1(455B).

5. If a system collecting fewer than five routine samples per month has one or more total coliform-positive samples and the department does not invalidate the sample(s) under 41.2(1)*"c"*(3), it must collect at least five routine samples during the next month the system provides water to the public. For systems monitoring on a quarterly basis, the additional five routine samples may be required to be taken within the same quarter in which the original total coliform-positive sample occurred.

The department may waive the requirement to collect five routine samples the next month the system provides water to the public if the department has determined through an on-site visit the reason that the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the department must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the water supply section and the department official who recommends such a decision, and make this document available to the EPA and public. The written documentation will generally be provided by the public water supply system in the form of a request and must describe the specific cause of the total coliform-positive sample and what action the system has taken to correct the problem. The department will not waive the requirement to collect five routine samples the next month the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the requirement to collect five routine samples is waived under this paragraph, a system must still take at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in 41.2(1)*"b."*

(3) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this subparagraph does not count towards meeting the minimum monitoring requirements of 41.2(1)*"c."* The department may invalidate a total coliform-positive sample only if one or more of the following conditions are met.

1. The laboratory establishes that improper sample analysis caused the total coliform-positive result. A laboratory must invalidate a total coliform sample (unless total coliforms are detected, in which case, the sample is valid) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the multiple tube fermentation technique), produces a turbid culture in the absence of an acid reaction in the presence-absence (P-A) coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., membrane filter technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system must continue to resample within and have the samples analyzed until it obtains a valid result. The department may waive the 24-hour time limit on a case-by-case basis.

2. The department, on the basis of the results of repeat samples collected as required by 41.2(1)*"c"*(2)"1" to "4," determines that the total coliform-positive sample resulted from a domestic or other nondistribution system plumbing problem. "Domestic or other nondistribution system plumbing problem" means a coliform contamination problem in a public water supply system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken. The department will not invalidate a sample on the basis of repeat sample results unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected within five service connections of the original tap are total coliform-negative (e.g., the department will not invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the public water supply system has only one service connection).

3. The department has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under 41.2(1)*"c"*(2)"1" to "4," and use them to determine compliance with the MCL for total coliforms in 41.2(1)*"b."* To invalidate a total coliform-positive sample under this paragraph, the decision with the rationale for the decision must be documented in writing and approved and signed by the supervisor of the water supply section and the department official who recommended the decision. The department must make this document available to EPA and the public. The written documentation generally provided by the public water supply system in the form of a request must state the specific cause of the total coliform-positive sample, and what action the system has taken to correct this problem. The department will not invalidate a total coliform-positive sample solely on the grounds of poor sampling technique or that all repeat samples are total coliform-negative.

(4) Fecal coliforms/*Escherichia coli (E. coli)* testing.

1. If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for *E. coli* in lieu of fecal coliforms.

2. The department may allow a public water supply system, on a case-by-case basis, to forego fecal coliform or *E. coli* on a total coliform-positive sample if that system assumes that the total coliform-positive sample is fecal coliform-positive or *E. coli*-positive. Accordingly, the system must notify the department as specified in 41.2(1)*"c"*(5)"1" and meet the provisions of 567—42.1(455B) pertaining to public notification.

(5) Public water supply system's response to violation.

1. A public water supply system which has exceeded the MCL for total coliforms in 41.2(1)*"b"* must report the violation to the water supply section of the department by telephone no later than the end of the next business day after it learns of the violation, and notify the public in accordance with 567—42.1(455B).

2. A public water supply system which has failed to comply with a coliform monitoring requirement must report the monitoring violation to the department within ten days after the system discovers the violation and notify the public in accordance with 567—42.1(455B).

3. If fecal coliforms or *E. coli* are detected in a routine or repeat sample, the system must notify the department by telephone by the end of the day when the system is notified of the test result, unless the system is notified of the result after the department office is closed, in which case the system must notify the department before the end of the next business day. If the detection of fecal coliform or *E. coli* in a sample causes a violation of the MCL, the system is required to notify the public in accordance with 567—42.1(455B).

d. Best available technology (BAT). The U.S. EPA identifies, and the department has adopted, the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant level for total coliforms in 41.2(1)*"b."*

(1) Well protection. Protection of wells from contamination by coliforms by appropriate placement and construction;

(2) Disinfectant residual. Maintenance of a disinfectant residual throughout the distribution system;

(3) Distribution system maintenance. Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, and continual maintenance of a minimum positive water pressure of 20 psig in all parts of the distribution system at all times; and

(4) Filtration or disinfection. Filtration and disinfection of surface water or groundwater under the direct influence of surface water in accordance with 567—43.5(455B) or disinfection of groundwater using strong oxidants such as, but not limited to, chlorine, chlorine dioxide, or ozone.

(5) Wellhead protection program. For groundwater systems, compliance with the requirements of the department's wellhead protection program.

e. Analytical methodology.

(1) Sample volume. The standard sample volume required for total coliform analysis, regardless of analytical method used, is 100 mL.

(2) Presence/absence determination. Public water supply systems shall determine the presence or absence of total coliforms. A determination of total coliform density is not required.

(3) Total coliform bacteria analytical methodology. Public water supply systems must conduct total coliform analyses in accordance with one of the analytical methods in the following table:

Organism	Methodology[12]	Citation[1]
Total Coliforms[2]	Total Coliform Fermentation Technique[3,4,5]	9221A, B
	Total Coliform Membrane Filter Technique[6]	9222A, B, C
	Presence-Absence (P-A) Coliform Test[5,7]	9221D
	ONPG-MUG Test[8]	9223
	Colisure Test[9]	
	E*Colite Test[10]	
	m-ColiBlue24 Test[11]	
	Readycult Coliforms 100 Presence/Absence Test[13]	
	Membrane Filter Technique Using Chromocult Coliform Agar[14]	
	Colitag Test[15]	

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents listed in footnotes 1, 6, 8, 9, 10, 11, 13, 14, and 15 was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue NW, Room B102, Washington, DC 20460, telephone (202)566-2426; or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC 20408.

[1]Methods 9221A, B; 9222A, B, C; 9221D; and 9223 are contained in Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998, American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005. The cited methods published in any of these three editions may be used.

[2]The time from sample collection to initiation of the analysis may not exceed 30 hours. Systems are encouraged but not required to hold samples below 10 degrees Celsius during transit.

[3]Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the system conducts at least 25 parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms, using lactose broth, is less than 10 percent.

[4]If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half to two-thirds after the sample is added.

[5]No requirement exists to run the completed phase on 10 percent of all total coliform-positive confirmed tubes.

[6]MI agar also may be used. Preparation and use of MI agar is set forth in the article, "New medium for the simultaneous detection of total coliform and *Escherichia coli* in water," by Brenner, K.P., et al., 1993, Applied Environmental Microbiology 59:3534-3544. Also available from the Office of Water Resource Center (RC-4100), 401 M Street SW, Washington, DC 20460, EPA 600/J-99/225.

[7]Six-times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.

[8]The ONPG-MUG Test is also known as the Autoanalysis Colilert System.

[9]The Colisure Test may be read after an incubation time of 24 hours. A description of the Colisure Test, February 28, 1994, may be obtained from IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092.

[10]A description of the E*Colite Test, "Presence/Absence for Coliforms and *E. Coli* in Water," December 21, 1997, is available from Charm Sciences, Inc., 25 Franklin Street, Malden, MA 02148-4120.

[11]A description of the m-ColiBlue24 Test, August 17, 1999, is available from the Hach Company, 100 Dayton Avenue, Ames, IA 50010.

[12]The department strongly recommends that laboratories evaluate the false-positive and false-negative rates for the method(s) they use for monitoring total coliforms. It also encourages laboratories to establish false-positive and false-negative rates within their own laboratory and sample matrix (drinking water or source water) with the intent that if the method chosen has an unacceptable false-positive or false-negative rate, another method may be used. The department suggests that laboratories perform these studies on a minimum of 5 percent of all total coliform-positive samples, except for those methods for which verification/confirmation is already required, e.g., the M-Endo and LES Endo Membrane Filter Tests, Standard Total Coliform Fermentation Technique, and Presence-Absence Coliform Test. Methods for establishing false-positive and false-negative rates may be based on lactose fermentation, the rapid test for beta-galactosidase and cytochrome oxidase, multitest identification systems, or equivalent confirmation tests. False-positive and false-negative information is often available in published studies or from the manufacturer(s).

[13]The Readycult Coliforms 100 Presence/Absence Test is described in the document, "Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," November 2000, Version 1.0, available from EM Science, 480 S. Democrat Road, Gibbstown, NJ 08027-1297, telephone: (800)222-0342, E-mail address: adellenbusch@emscience.com.

[14]Membrane Filter Technique using Chromocult Coliform Agar is described in the document, "Chromocult Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," November 2000, Version 1.0, available from EM Science, 480 S. Democrat Road, Gibbstown, NJ 08027-1297, telephone: (800)222-0342, E-mail address: adellenbusch@emscience.com.

[15]Colitag product for the determination of the presence/absence of total coliforms and *E. coli* is described in "Colitag Product as a Test for Detection and Identification of Coliforms and *E. coli* Bacteria in Drinking Water and Source Water as Required in National Primary Drinking Water Regulations," August 2001, available from CPI International, Inc., 5580 Skylane Blvd., Santa Rosa, CA 95403, telephone: (800)878-7654, Internet address: www.cpiinternational.com.

(4) Rescinded IAB 8/11/99, effective 9/15/99.

(5) Fecal coliform analytical methodology. Public water systems must conduct fecal coliform analysis in accordance with the following procedure. When the MTF Technique or presence-absence (P-A) coliform test is used to test for total coliforms, shake the lactose-positive presumptive tube or P-A bottle vigorously and transfer the growth with a sterile 3-mm loop or sterile applicator stick into brilliant green lactose bile broth and EC medium to determine the presence of total and fecal coliforms, respectively. For EPA-approved analytical methods which use a membrane filter, transfer the total coliform-positive culture by one of the following methods: remove the membrane containing the total coliform colonies from the substrate with sterile forceps and carefully curl and insert the membrane into a tube of EC medium (the laboratory may first remove a small portion of selected colonies for verification); swab the entire membrane filter surface with a sterile cotton swab and transfer the inoculum to EC medium (do not leave the cotton swab in the EC medium); or inoculate individual total coliform-positive colonies into EC medium. Gently shake the inoculated EC tubes to ensure adequate mixing and incubate in a waterbath at 44.5 (+ or -) 0.2 degrees C for 24 (+ or -) 2 hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test. The preparation of EC medium is described in Method 9221E (paragraph 1a) in Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, and 20th edition, 1998; the cited method in any one of these three editions may be used. Public water supply systems need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required.

(6) *E. coli* analytical methodology. Public water systems must conduct analysis of *Escherichia coli (E. coli)* in accordance with one of the following analytical methods:

1. EC medium supplemented with 50 micrograms per milliliter of 4-methylumbelliferyl-beta-D-glucuronide (MUG) (final concentration), as described in Method 9222G in Standard Methods for the Examination of Water and Wastewater, 19th edition (1995) and 20th edition (1998). Either edition may be used. Alternatively, the 18th edition (1992) may be used if at least 10 mL of EC medium, as previously described in subparagraph 41.2(1)*"e"*(5), is supplemented with 50 micrograms/mL of MUG before autoclaving. The inner inverted fermentation tube may be omitted. If the 18th edition is used, apply the procedure in subparagraph 41.2(1)*"e"*(5) for transferring a total coliform-positive culture to EC medium supplemented with MUG, incubate the tube at 44.5 plus or minus 0.2 degrees Celsius for 24 plus or minus 2 hours, and then observe fluorescence with an ultraviolet light (366 nm) in the dark. If fluorescence is visible, *E. coli* are present.

2. Nutrient agar supplemented with 100 micrograms per mL 4-methylumbelliferyl-beta-D-glucuronide (MUG) (final concentration). Nutrient agar is described in Method 9222G in Standard Methods for the Examination of Water and Wastewater, 19th edition (1995) and 20th edition (1998). Either edition may be used for determining if a total coliform-positive sample, as determined by a membrane filter technique, contains *E. coli*. Alternatively, the 18th edition (1992) may be used if the membrane filter containing a total coliform-positive colony(ies) is transferred to nutrient agar, as described in Method 9221B (paragraph 3) of Standard Methods (18th edition), supplemented with 100 micrograms/mL of MUG. If the 18th edition is used, incubate the agar plate at 35 degrees Celsius for 4 hours and then observe the colony(ies) under ultraviolet light (366 nm) in the dark for fluorescence. If fluorescence is visible, *E. coli* is present.

3. Minimal Medium ONPG-MUG (MMO-MUG) Test, as set forth in the article "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and *Escherichia coli* from Drinking Water: Comparisons with Presence-Absence Techniques" (Edberg et al.), Applied and Environmental Microbiology, Volume 55, pp. 1003-1008, April 1989. (Note: The Autoanalysis Colilert System is an MMO-MUG test.) If the MMO-MUG Test is total coliform-positive after a 24-hour incubation, test the medium for fluorescence with a 366-nm ultraviolet light (preferably with a 6-watt lamp) in the dark. If fluorescence is observed, the sample is *E. coli*-positive. If fluorescence is questionable (cannot be definitively read) after 24 hours incubation, incubate the culture for an additional 4 hours (but not to exceed 28 hours total), and again test the medium for fluorescence. The MMO-MUG Test with hepes buffer is the only approved formulation for the detection of *E. coli*.

4. The membrane filter method with MI agar, as described in footnote 6 of the Total Coliform Methodology Table in 41.2(1)*"e"*(3).

5. E*Colite Test, as described in footnote 10 of the Total Coliform Methodology Table in 41.2(1)*"e"*(3).

6. m-ColiBlue 24 Test, as described in footnote 11 of the Total Coliform Methodology Table in 41.2(1)*"e"*(3).

7. Colisure Test, as described in footnote 9 of the Total Coliform Methodology Table in 41.2(1)*"e"*(3).

8. Readycult Coliforms 100 Presence/Absence Test, as described in footnote 13 of the Total Coliform Methodology Table in 41.2(1)*"e"*(3).

9. Membrane Filter Technique using Chromocult Coliform Agar, as described in footnote 14 of the Total Coliform Methodology Table in 41.2(1)*"e"*(3).

10. Colitag, as described in footnote 15 of the Total Coliform Methodology Table in 41.2(1)*"e"*(3).

(7) Optional *E. coli* analytical methodology. As an option to 41.2(1)*"e"*(6) a system with a total coliform-positive, MUG-negative, MMO-MUG Test may further analyze the culture for the presence of *E. coli* by transferring a 0.1 mL, 28-hour MMO-MUG culture to EC Medium + MUG with a pipette. The formulation and incubation conditions of EC Medium + MUG and observation of the results are described in 41.2(1)*"e"*(6).

41.2(2) *Giardia.* Reserved.

41.2(3) *Heterotrophic plate count bacteria (HPC).*

a. Applicability. All public water systems that use a surface water source or source under the direct influence of surface water must provide treatment consisting of disinfection, as specified

in 567—subrule 43.5(2), and filtration treatment which complies with 567—subrule 43.5(3). The heterotrophic plate count is an alternate method to demonstrate a detectable disinfectant residual in accordance with 567—paragraph 43.5(2)*"d."*

b. Maximum contaminant levels. Reserved.

c. Monitoring requirements. Reserved.

d. BAT. Reserved.

e. Analytical methodology. Public water systems shall conduct heterotrophic plate count bacteria analysis in accordance with 567—subrule 43.5(2) and the following analytical method. Measurements for heterotrophic plate count bacteria must be conducted by a laboratory certified by the department to do such analysis, when heterotrophic plate count bacteria are being measured in lieu of a detectable residual disinfectant pursuant to 567—paragraph 43.5(2)*"d."* In addition, the time from sample collection to initiation of analysis may not exceed eight hours, and the systems must hold the samples below 10 degrees Celsius during transit to the laboratory.

(1) Method. The heterotrophic plate count shall be performed in accordance with one of the following methods:

1. Method 9215B Pour Plate Method, Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998. The cited method in any of the three editions may be used.

2. SimPlate Method, "IDEXX SimPlate TM HPC Test Method for Heterotrophs in Water," November 2000, IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092, telephone (800)321-0207.

(2) Reporting. The public water system shall report the results of heterotrophic plate count in accordance with 567—subparagraph 42.4(3)*"c"*(2).

41.2(4) *Macroscopic organisms and algae.*

a. Applicability. These rules apply to both community and noncommunity public water supply systems using surface water or groundwater under direct influence of surface water as defined by 567—subrule 43.5(1).

b. Maximum contaminant levels (MCLs) for macroscopic organisms and algae. Finished water shall be free of any macroscopic organisms such as plankton, worms, or cysts. The finished water algal cell count shall not exceed 500 organisms per milliliter or 10 percent of the total cells found in the raw water, whichever is greater.

c. Monitoring requirements. Reserved.

d. BAT. Reserved.

e. Analytical methodology. Measurement of the algal cells shall be in accordance with Method 10200F: Phytoplankton Counting Techniques, Standard Methods for the Examination of Water and Wastewater, 18th edition, pp. 10-13 to 10-16. Such measurement shall be required only when the department determines on the basis of complaints or otherwise that excessive algal cells may be present.
[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—41.3(455B) Maximum contaminant levels (MCLs) and monitoring requirements for inorganic contaminants other than lead or copper.

41.3(1) *MCLs and other requirements for inorganic contaminants.*

a. Applicability. Maximum contaminant levels for inorganic contaminants (IOCs) specified in 41.3(1)*"b"* apply to community water systems and nontransient noncommunity water systems as specified herein. The maximum contaminant level specified for fluoride applies only to community water systems and nontransient noncommunity systems which primarily serve children (child care facilities and schools). The maximum contaminant levels specified for nitrate, nitrite, and total nitrate and nitrite apply to community, nontransient noncommunity, and transient noncommunity water systems. At the discretion of the department, nitrate levels not to exceed 20.0 mg/L may be allowed in a noncommunity water system if the supplier of water demonstrates to the satisfaction of the department that:

(1) Such water will not be available to children under 6 months of age; and

(2) The system is meeting the public notification requirements of rule 567—42.1(455B), including continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure; and

(3) The following public health authorities will be notified annually of nitrate levels that exceed 10 mg/L, in addition to the reporting requirements of 567—Chapters 41 and 42: county board of health, county health department, county sanitarian, county public health administrator, and Iowa department of public health; and

(4) No adverse health effects shall result.

The requirements also contain monitoring requirements, best available technology (BAT) identification, and analytical method requirements pursuant to 41.3(1)*"c,"* and 567—paragraphs 41.3(1)*"e"* and 43.3(10)*"b,"* respectively.

b. Maximum contaminant levels for inorganic chemicals (IOCs).

(1) IOC MCLs. The following table specifies the MCLs for IOCs:

Contaminant	EPA Contaminant Code	Maximum Contaminant Level (mg/L)
Antimony	1074	0.006
Arsenic*	1005	0.010
Asbestos	1094	7 million fibers/liter (longer than 10 micrometers in length)
Barium	1010	2
Beryllium	1075	0.004
Cadmium	1015	0.005
Chromium	1020	0.1
Cyanide (as free Cyanide)	1024	0.2
Fluoride**	1025	4.0
Mercury	1035	0.002
Nitrate	1040	10 (as nitrogen)
Nitrite	1041	1.0 (as nitrogen)
Total Nitrate and Nitrite	1038	10 (as nitrogen)
Selenium	1045	0.05
Thallium	1085	0.002

*The arsenic MCL changed from 0.05 mg/L to 0.010 mg/L on January 23, 2006.

**The recommended fluoride level is 1.1 milligrams per liter or the level as calculated from "Water Fluoridation, a Manual for Engineers and Technicians" Table 2-4 published by the U.S. Department of Health and Human Services, Public Health Service (September 1986). At this optimum level in drinking water, fluoride has been shown to have beneficial effects in reducing the occurrence of tooth decay.

(2) Compliance calculations. Compliance with 41.3(1)*"b"*(1) shall be determined based on the analytical result(s) obtained at each source/entry point. When the department requires a system to collect nitrate or nitrite samples in its distribution system, compliance with 41.3(1)*"b"*(1) shall also be determined based on the analytical result(s) obtained at each discrete sampling point in the distribution system. Arsenic sampling results must be reported to the nearest 0.001 mg/L.

1. Sampling frequencies greater than annual (e.g., monthly or quarterly). For public water supply systems which are conducting monitoring at a frequency greater than annual, compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium is determined by a running annual average at any sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero

for the purpose of determining the annual average. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

2. Sampling frequencies of annual or less. For public water supply systems which are monitoring annually, or less frequently, the system is out of compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the department, it must be collected as soon as possible from the same sampling location, but not to exceed two weeks, and the determination of compliance will be based on the average of the two samples. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

3. Compliance calculations for nitrate and nitrite. Compliance with the maximum contaminant levels for nitrate and nitrite is determined based on one sample if the level of these contaminants is below the MCLs. If the level of nitrate or nitrite exceeds the MCLs in the initial sample, a confirmation sample may be required in accordance with 41.3(1)*"c"*(7)"2," and compliance shall be determined based on the average of the initial and confirmation samples.

(3) Additional requirements. The department may assign additional requirements as deemed necessary to protect the public health, including public notification requirements and earlier compliance dates than indicated in rule. When a system is not in compliance with an MCL as determined in subparagraph 41.3(1)*"b"*(2), the supplier of the water shall notify the department according to 567—subrule 42.4(1) and give notice to the public according to 567—42.1(455B).

c. Inorganic chemicals—monitoring requirements.

(1) Routine IOC monitoring (excluding asbestos, nitrate, and nitrite). Community public water supply systems and nontransient noncommunity water systems shall conduct monitoring to determine compliance with the MCLs specified in 41.3(1)*"b"* in accordance with this subrule. Transient noncommunity water systems shall conduct monitoring to determine compliance with the nitrate and nitrite maximum contaminant levels in 41.3(1)*"b"* as required by 41.3(1)*"c"*(5) and (6). All new systems or systems that use a new source of water must demonstrate compliance with the MCLs specified in 41.3(1)*"b"* within a period of time specified by the department. The system must also comply with the initial sampling frequencies specified by the department to ensure the system can demonstrate compliance with the MCLs. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in paragraph 41.3(1)*"c."* A source of water that is determined by the department to be a new source/entry point is considered to be a new source for the purposes of this rule.

(2) Department designated sampling schedules: Each public water system shall monitor at the time designated by the department during each compliance period. The monitoring protocol is as follows:

1. Groundwater sampling points. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point) beginning in the compliance period starting January 1, 1993. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. Surface water sampling points. Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a source/entry point) beginning in the compliance period starting January 1, 1993. (For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.) The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

3. Multiple sources. If a public water supply system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

4. Composite sampling. The department may reduce the total number of samples which must be analyzed by the use of compositing. In systems serving less than or equal to 3,300 persons, composite samples from a maximum of five samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory. If the concentration in the composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, then a follow-up sample must be taken within 14 days at each sampling point included in the composite. These samples must be analyzed for the contaminants which exceeded one-fifth of the MCL in the composite sample. If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these duplicates instead of resampling, provided the holding time of the duplicate samples is not exceeded. The duplicate must be analyzed and the results reported to the department within 14 days after completing analysis of the composite sample. If the population served by the system is greater than 3,300 persons, then compositing may only be permitted by the department as sampling points within a single system. In systems serving less than or equal to 3,300 persons, the department may permit compositing among different systems provided the five-sample limit is maintained. Detection limits for each inorganic contaminant analytical method are contained in 41.3(1)*"e"*(1).

(3) Asbestos routine and repeat monitoring frequency. The frequency of monitoring conducted to determine compliance with the maximum contaminant level for asbestos specified in 41.3(1)*"b"* shall be conducted as follows:

1. Initial sampling frequency. Each community and nontransient noncommunity water system is required to monitor for asbestos during the first three-year compliance period of each nine-year compliance cycle beginning in the compliance period starting January 1, 1993.

2. Sampling during waiver. If the public water supply system believes it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both, it may apply for a waiver of the monitoring requirement in 41.3(1)*"c"*(3)"1." If the department grants the waiver, the system is not required to monitor.

3. Bases of an asbestos waiver. The department may grant a waiver based on a consideration of potential asbestos contamination of the water source, the use of asbestos-cement pipe for finished water distribution, and the corrosive nature of the water.

4. Effect of an asbestos waiver. A waiver remains in effect until the completion of the three-year compliance period. Systems not receiving a waiver must monitor in accordance with 41.3(1)*"c"*(3)"1."

5. Distribution system vulnerability for asbestos. A public water supply system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

6. Source water vulnerability for asbestos. A public water supply system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provision of 41.3(1)*"c"*(2).

7. Combined asbestos vulnerability. A public water supply system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

8. Exceedance of the asbestos MCL. A public water supply system which exceeds the maximum contaminant levels as determined in 41.3(1)*"b"* shall monitor quarterly beginning in the next quarter after the violation occurred.

9. Asbestos reliably and consistently below the MCL. The department may decrease the quarterly monitoring requirement to the frequency specified in 41.3(1)*"c"*(3)"1" provided the system is reliably and consistently below the maximum contaminant level. In no case can the department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four quarterly samples.

10. Grandfathered asbestos data. If monitoring data collected after January 1, 1990, are generally consistent with the requirements of 41.3(1)*"c"*(3), then the department may allow public water supply

systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(4) Monitoring frequency for other IOCs. The frequency of monitoring conducted to determine compliance with the maximum contaminant levels in 41.3(1)*"b"* for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium shall be as follows:

1. IOCs sampling frequency. Groundwater systems shall take one sample at each sampling point once every three years. Surface water systems (or combined surface/groundwater systems) shall take one sample annually at each sampling point.

2. IOC sampling waiver. The public water supply system may apply for a waiver from the monitoring frequencies specified in 41.3(1)*"c"*(4)"1."

3. IOC sampling during a waiver. A condition of the waiver shall require that a public water supply system shall take a minimum of one sample while the waiver is effective. The term during which the waiver is effective shall not exceed one compliance cycle (i.e., nine years).

4. Bases of an IOC waiver and grandfathered data. The department may grant a waiver provided surface water systems have monitored annually for at least three years and groundwater systems have conducted a minimum of three rounds of monitoring. (At least one sample shall have been taken since January 1, 1990.) Both surface and groundwater systems shall demonstrate that all previous analytical results were less than the maximum contaminant level. Systems that use a new water source are not eligible for a waiver until three rounds of monitoring from the new source have been completed. Systems may be granted a waiver for monitoring of cyanide, provided that the department determines that the system is not vulnerable due to lack of any industrial source of cyanide.

5. Bases of the IOC sampling frequency during a waiver. In determining the appropriate reduced monitoring frequency, the department will consider: reported concentrations from all previous monitoring; the degree of variation in reported concentrations; and other factors which may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the system's configuration, changes in the system's operating procedures, or changes in stream flows or characteristics.

6. Effect of an IOC waiver. A decision to grant a waiver shall be made in writing and shall include the basis for the determination. The determination may be initiated by the department or upon an application by the public water supply system. The public water supply system shall specify the basis for its request. The department may review and, where appropriate, revise its determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency become available.

7. Exceedance of an IOC MCL. Public water supply systems which exceed the maximum contaminant levels as calculated in 41.3(1)*"b"* shall monitor quarterly beginning in the next quarter after the violation occurred.

8. IOCs reliably and consistently below the MCL. The department may decrease the quarterly monitoring requirement to the frequencies specified in 41.3(1)*"c"*(4)"1" and "3" provided it has determined that the public water supply system is reliably and consistently below the maximum contaminant level. In no case can the department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

(5) Routine and repeat monitoring frequency for nitrates. All public water supply systems (community; nontransient noncommunity; and transient noncommunity systems) shall monitor to determine compliance with the maximum contaminant level for nitrate in 41.3(1)*"b."*

1. Initial nitrate sampling. Community and nontransient noncommunity water systems served by groundwater systems shall monitor annually beginning January 1, 1993; systems served by surface water shall monitor quarterly beginning January 1, 1993. Transient noncommunity water systems shall monitor annually beginning January 1, 1993.

2. Groundwater repeat nitrate sampling frequency. For community and noncommunity water systems, the repeat monitoring frequency for groundwater systems shall be:

- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 5.0 mg/L as N. The department may allow a groundwater system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than 5.0 mg/L as N.
- Monthly for at least one year following any one sample in which the concentration is greater than or equal to 10.0 mg/L as N.

3. Surface water repeat nitrate sampling frequency. For community and noncommunity water systems, the department may allow a surface water system to reduce the sampling frequency to:

- Annually if all analytical results from four consecutive quarters are less than 5.0 mg/L as N.
- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 5.0 mg/L as N. The department may allow a surface water system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than 5.0 mg/L as N.
- Monthly for at least one year following any nitrate MCL exceedance.

4. Scheduling annual nitrate repeat samples. After the initial round of quarterly sampling is completed, each community and nontransient noncommunity system which is monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

(6) Routine and repeat monitoring frequency for nitrite. All public water supply systems (community; nontransient noncommunity; and transient noncommunity systems) shall monitor to determine compliance with the maximum contaminant level for nitrite in 41.3(1)*"b."*

1. Initial nitrite sampling. All public water systems shall take one sample at each sampling point in the compliance period beginning January 1, 1993, and ending December 31, 1995.

2. Nitrite repeat monitoring. After the initial sample, systems where an analytical result for nitrite is less than 0.50 mg/L as N shall monitor at the frequency specified by the department.

3. Nitrite increased monitoring. For community, nontransient noncommunity, and transient noncommunity water systems, the repeat monitoring frequency for any water system shall be:

- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 0.50 mg/L as N. The department may allow a system to reduce the sampling frequency to annually after determining the system is reliably and consistently less than 0.50 mg/L.
- Monthly for at least one year following any nitrite MCL exceedance.

4. Scheduling of annual nitrite repeat samples. Systems which are monitoring annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.

(7) Confirmation sampling.

1. Deadline for IOCs confirmation samples. Where the results of an analysis for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium indicate an exceedance of the maximum contaminant level, the department may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point.

2. Deadline for nitrate and nitrite confirmation samples. Where nitrate or nitrite sampling results indicate an exceedance of the maximum contaminant level and the sampling frequency is quarterly or annual, the system shall take a confirmation sample within 24 hours of the system's receipt of notification of the analytical results of the first sample. Public water supply systems unable to comply with the 24-hour sampling requirement must immediately notify the consumers served by the area served by the public water system in accordance with 567—42.1(455B) Tier 1 public notice and complete an analysis of a confirmation sample within two weeks of notification of the analytical results of the first sample. Where the sampling frequency is monthly, a confirmation sample will not be used to determine compliance with the MCL.

3. Rescinded IAB 1/7/04, effective 2/11/04.

4. Compliance calculations and confirmation samples. If a required confirmation sample as collected within the time specified in 41.3(1)*"c"*(7)"1" is taken for any contaminant, then the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine

the system's compliance in accordance with 41.3(1)*"b."* The department has the discretion to invalidate results of obvious sampling errors.

(8) Designation of increased sampling frequency. The department may require more frequent monitoring than specified in 41.3(1)*"c"*(3) through (6) or may require confirmation samples for positive and negative results at its discretion. Public water supply systems may apply to conduct more frequent monitoring than the minimum monitoring frequencies specified in this subrule. Any increase or decrease in monitoring under this subparagraph will be designated in an operation permit or administrative order. To increase or decrease such frequency, the department shall consider the following factors:

1. Reported concentrations from previously required monitoring,
2. The degree of variation in reported concentrations,
3. Blending or treatment processes conducted for the purpose of complying with a maximum contaminant level, treatment technique, or action level, and
4. Other factors include changes in pumping rates in groundwater supplies or significant changes in the system's configuration, operating procedures, source of water and changes in streamflows.

(9) Grandfathered data. For the initial analysis required by 41.3(1)*"c,"* data for surface waters acquired within one year prior to the effective date and data for groundwaters acquired within three years prior to the effective date of 41.3(1)*"c"* may be substituted at the discretion of the department.

d. Best available treatment technologies (BATs) for IOCs. Rescinded IAB 8/11/99, effective 9/15/99.

e. Analytical methodology.

(1) Analytical methods for IOCs. Analysis for the listed inorganic contaminants shall be conducted using the following methods, or their equivalent as determined by EPA. Criteria for analyzing arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, selenium, sodium, and thallium with digestion or directly without digestion, and other analytical test procedures are contained in Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October, 1994. This document is available from the National Technical Information Service, NTIS PB95-104766, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. The toll-free number is (800)553-6847.

INORGANIC CONTAMINANTS ANALYTICAL METHODS

Contaminant	Methodology[15]	EPA	ASTM[3]	SM	Other	Detection Limit, mg/L
Antimony	Atomic absorption; furnace			3113B[4]		0.003
	Atomic absorption; platform	200.9[2]				0.0008[12]
	ICP-Mass spectrometry	200.8[2]				0.0004
	Atomic absorption; hydride		D3697-92			0.001
Arsenic[16]	ICP-Mass spectrometry	200.8[2]				0.0014[17]
	Atomic absorption; platform	200.9[2]				0.0005[15]
	Atomic absorption; furnace		D2972-97C	3113B[4]		0.001
	Atomic absorption; hydride		D2972-97B	3114B[4]		0.001
Asbestos	Transmission electron microscopy	100.1[9]				0.01 MFL
	Transmission electron microscopy	100.2[10]				
Barium	Inductively coupled plasma	200.7[2]		3120B[18]		0.002
	ICP-Mass spectrometry	200.8[2]				
	Atomic absorption; direct			3111D[4]		0.1
	Atomic absorption; furnace			3113B[4]		0.002
Beryllium	Inductively coupled plasma	200.7[2]		3120B[18]		0.0003
	ICP-Mass spectrometry	200.8[2]				0.0003
	Atomic absorption; platform	200.9[2]				0.00002[12]
	Atomic absorption; furnace		D3645-97B	3113B[4]		0.0002
Cadmium	Inductively coupled plasma	200.7[2]				0.001
	ICP-Mass spectrometry	200.8[2]				

Contaminant	Methodology[15]	EPA	ASTM[3]	SM	Other	Detection Limit, mg/L
	Atomic absorption; platform	200.9[2]				
	Atomic absorption; furnace			3113B[4]		0.0001
Chromium	Inductively coupled plasma	200.7[2]		3120B[18]		0.007
	ICP-Mass spectrometry	200.8[2]				
	Atomic absorption; platform	200.9[2]				
	Atomic absorption; furnace			3113B[4]		0.001
Cyanide	Manual distillation (followed by one of the following four analytical methods:)		D2036-98A	4500-CN-C[18]		
	Spectrophotometric; amenable[14]		D2036-98B	4500-CN-G[18]		0.02
	Spectrophotometric; manual[13]		D2036-98A	4500-CN-E[18]	I-3300-85[5]	0.02
	Spectrophotometric; semi-automated[13]	335.4[6]				0.005
	Selective electrode[13]			4500-CN-F[18]		0.05
	UV/Distillation/Spectrophotometric				Kelada 01[20]	0.0005
	Distillation/Spectrophotometric				QuikChem 10-204-00-1-X[21]	0.0006
Fluoride	Ion chromatography	300.0[6]	D4327-97	4110B[18]		
	Manual distillation; colorimetric; SPADNS			4500F-B,D[18]		
	Manual electrode		D1179-93B	4500F-C[18]		
	Automated electrode				380-75WE[11]	
	Automated alizarin			4500F-E[18]	129-71W[11]	
Magnesium	Atomic absorption; direct		D511-93B	3111B[4]		
	ICP	200.7[1]		3120B[18]		
	Complexation Titrimetric Methods		D511-93A	3500-Mg E[4]		
				3500-Mg B[19]		
Mercury	Manual, cold vapor	245.1[2]	D3223-97	3112B[4]		0.0002
	Automated, cold vapor	245.2[1]				0.0002
	ICP-Mass spectrometry	200.8[2]				
Nickel	Inductively coupled plasma	200.7[2]		3120B[18]		0.005
	ICP-Mass spectrometry	200.8[2]				0.0005
	Atomic absorption; platform	200.9[2]				0.0006[12]
	Atomic absorption; direct			3111B[4]		
	Atomic absorption; furnace			3113B[4]		0.001
Nitrate	Ion chromatography	300.0[6]	D4327-97	4110B[18]	B-1011[8]	0.01
	Automated cadmium reduction	353.2[6]	D3867-90A	4500-NO_3-F[18]		0.05
	Ion selective electrode			4500-NO_3-D[18]	601[7]	1
	Manual cadmium reduction		D3867-90B	4500-NO_3-E[18]		0.01
Nitrite	Ion chromatography	300.0[6]	D4327-97	4110B[18]	B-1011[8]	0.004
	Automated cadmium reduction	353.2[6]	D3867-90A	4500-NO_3-F[18]		0.05
	Manual cadmium reduction		D3867-90B	4500-NO_3-E[18]		0.01
	Spectrophotometric			4500-NO_2-B[18]		0.01
Selenium	Atomic absorption; hydride		D3859-98A	3114B[4]		0.002
	ICP-Mass spectrometry	200.8[2]				
	Atomic absorption; platform	200.9[2]				
	Atomic absorption; furnace		D3859-98B	3113B[4]		0.002
Sodium	Inductively coupled plasma	200.7[2]				
	Atomic absorption; direct			3111B[4]		
Thallium	ICP-Mass spectrometry	200.8[2]				
	Atomic absorption; platform	200.9[2]				0.0007[12]

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW Room B102, Washington, DC 20460 (telephone: (202)566-2426); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC.

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983. Available at NTIS, PB84-128677.

[2]"Methods for the Determination of Metals in Environmental Samples—Supplement I," EPA-600/R-94-111, May 1994. Available at NTIS, PB95-125472.

[3]Annual Book of ASTM Standards, 1994, 1996, or 1999, Vols. 11.01 and 11.02, American Society for Testing and Materials (ASTM) International; any year containing the cited version of the method may be used. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[4]18th and 19th editions of Standard Methods for the Examination of Water and Wastewater, 1992 and 1995, respectively, American Public Health Association; either edition may be used. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[5]Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd edition, 1989, Method I-3300-85. Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

[6]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA-600-R-93-100, August 1993. Available at NTIS, PB94-120821.

[7]The procedure shall be done in accordance with the Technical Bulletin 601, "Standard Method of Test for Nitrate in Drinking Water," July 1994, PN221890-001, Analytical Technology, Inc. Copies may be obtained from ATI Orion, 529 Main Street, Boston, MA 02129.

[8]Method B-1011, "Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," August 1987. Copies may be obtained from Waters Corporation, Technical Services Division, 34 Maple Street, Milford, MA 01757.

[9]Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," EPA-600/4-83-043, EPA, September 1983. Available at NTIS, PB83-260471.

[10]Method 100.2, "Determination of Asbestos Structure Over 10 Microns in Length in Drinking Water," EPA-600/R-94-134, June 1994. Available at NTIS, PB94-201902.

[11]Industrial Method No. 129-71W, "Fluoride in Water and Wastewater," December 1972, and Method No. 380-75WE, "Fluoride in Water and Wastewater," February 1976, Technicon Industrial Systems. Copies may be obtained from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

[12]Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.

[13]Screening method for total cyanides.

[14]Measures "free" cyanides.

[15]Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium by Method 200.7, sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Method 200.9 is capable of obtaining an arsenic MDL of 0.0001 mg/L using multiple depositions. Preconcentration may also be required for direct analysis of antimony and thallium by Method 200.9, and antimony by Method 3113B, unless multiple in-furnace depositions are made.

[16]If ultrasonic nebulization is used in the determination of arsenic by Method 200.8, the arsenic must be in the pentavalent state to provide uniform signal response. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain 1 mg/L of sodium hypochlorite.

[17]Using selective ion monitoring, EPA Method 200.8 (ICP-MS) is capable of obtaining an MDL of 0.0001 mg/L.

[18]The 18th, 19th, and 20th editions of Standard Methods for the Examination of Water and Wastewater, 1992, 1995, and 1998, respectively, American Public Health Association; any edition may be used. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[19]The 20th edition of Standard Methods for the Examination of Water and Wastewater, 1998, American Public Health Association. Copies may be obtaining from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[20]The description for the Kelada 01 Method, "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate," Revision 1.2, August 2001, EPA #821-B-01-009 for cyanide is available from NTIS PB 2001-108275.

[21]The description for the QuikChem Method 10-204-00-1-X, "Digestion and distillation of total cyanide in drinking water and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," Revision 2.1, November 30, 2000, for cyanide is available from Lachat Instruments, 6645 W. Mill Road, Milwaukee, WI 53218, telephone (414)358-4200.

(2) Sampling methods for IOCs. Sample collection for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this subparagraph shall be conducted using the sample preservation, container, and maximum holding time procedures specified in the table below:

SAMPLING METHODS FOR IOCs

Contaminant	Preservative[1]	Container[2]	Time[3]
Antimony	HNO_3	P or G	6 months
Arsenic	HNO_3	P or G	6 months
Asbestos	4 degrees C	P or G	48 hours for filtration[5]
Barium	HNO_3	P or G	6 months
Beryllium	HNO_3	P or G	6 months
Cadmium	HNO_3	P or G	6 months
Chromium	HNO_3	P or G	6 months
Cyanide	4 degrees C, NaOH	P or G	14 days
Fluoride	None	P or G	1 month
Mercury	HNO_3	P or G	28 days
Nickel	HNO_3	P or G	6 months
Nitrate[4]	4 degrees C	P or G	48 hours
Nitrate-Nitrite[4]	H_2SO_4	P or G	28 days
Nitrite[4]	4 degrees C	P or G	48 hours
Selenium	HNO_3	P or G	6 months
Thallium	HNO_3	P or G	6 months

[1]When indicated, samples must be acidified at the time of collection to pH < 2 with concentrated acid, or adjusted with sodium hydroxide to pH > 12. Samples collected for metals analysis may be preserved by acidification at the laboratory, using a 1:1 nitric acid solution (50 percent by volume), provided the shipping time and other instructions in Section 8.3 of EPA Methods 200.7, 200.8, and 200.9 are followed. When chilling is indicated, the sample must be shipped and stored at 4 degrees C or less.

[2]P: plastic, hard or soft; G: glass, hard or soft.

[3]In all cases, samples should be analyzed as soon after collection as possible. Follow additional (if any) information on preservation, containers, or holding times that is specified in the method.

[4]Nitrate may only be measured separate from nitrite in samples that have not been acidified. Measurement of acidified samples provides a total nitrate (sum of nitrate plus nitrite) concentration. Acidification of total nitrate (nitrate plus nitrite) samples must be done in the field at the time of sample collection.

[5]Instructions for containers, preservation procedures, and holding times as specified in Method 100.2 must be adhered to for all compliance analyses, including those conducted with Method 100.1.

f. Unregulated inorganic chemicals. Rescinded IAB 1/7/04, effective 2/11/04.

41.3(2) *Other inorganic chemical contaminants.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—41.4(455B) Lead, copper, and corrosivity.

41.4(1) *Lead, copper, and corrosivity regulation by the setting of a treatment technique requirement.* The lead and copper rules do not set an MCL, although this could be changed in the future. The rules set two enforceable action levels, which trigger tap monitoring, corrosion control, source water treatment, lead service line replacement, and public education if exceeded.

a. Applicability. Unless otherwise indicated, each of the provisions of this subrule applies to community water systems and nontransient noncommunity water systems (hereinafter referred to as "water systems" or "systems").

b. Action levels.

(1) Lead action level. The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with 41.4(1)*"c"* is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L).

(2) Copper action level. The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with 41.4(1)*"c"* is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

(3) Calculation of 90th percentile. The 90th percentile lead and copper levels shall be computed as follows:

The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

The number of samples taken during the monitoring period shall be multiplied by 0.9.

The contaminant concentration in the numbered sample yielded by this calculation is the 90th percentile contaminant level.

For water systems serving fewer than 100 people that collect five samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

c. Lead and copper tap water monitoring requirements.

(1) Sample site selection.

1. General. Public water supply systems shall complete a materials evaluation of their distribution systems by the date indicated in 41.4(1)*"c"*(4) in order to identify a pool of sampling sites that meets the requirements of this subrule, and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in 41.4(1)*"c"*(3). All sites from which first-draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

2. Information sources. A public water supply system shall use the information on lead, copper and galvanized steel that it is required to collect under 41.4(1)*"f"* as part of its responsibility for the special monitoring for corrosivity characteristics when conducting a materials evaluation. When an evaluation of the information collected is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in 41.4(1)*"c"*(1), the water system shall review all plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system; all inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and all existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations. In addition, the system shall seek to collect such information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities).

3. Tier 1 community sampling sites. The sampling sites selected for a community water system's sampling pool ("tier 1 sampling sites") shall consist of single-family structures that contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line. When multiple-family residences comprise at least 20 percent of the structures served by a water system, the system may include these types of structures in its sampling pool.

4. Tier 2 community sampling sites. Any community water system with insufficient tier 1 sampling sites shall complete its sampling pool with "tier 2 sampling sites," consisting of buildings, including multiple-family residences that contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line.

5. Tier 3 community sampling sites. Any community water system with insufficient Tier 1 and Tier 2 sampling sites shall complete its sampling pool with "Tier 3 sampling sites," consisting of single-family structures that contain copper pipes with lead solder installed before 1983. A community water system with insufficient Tier 1, Tier 2, and Tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. A representative site is defined as a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

6. Tier 1 NTNC sampling sites. The sampling sites selected for a nontransient noncommunity water system ("tier 1 sampling sites") shall consist of buildings that: contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line.

7. Other NTNC sampling sites. A nontransient noncommunity water system with insufficient Tier 1 sites that meet the targeting criteria in 41.4(1)*"c"*(1)"6" shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the NTNC system shall use representative sites throughout the distribution system. A representative site is defined as a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

8. LSL sampling sites. Any public water supply system whose distribution system contains lead service lines shall draw 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50 percent of those samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first-draw samples from all of the sites identified as being served by such lines.

(2) Sample collection methods.

1. Tap samples for lead and copper collected in accordance with this subparagraph, with the exception of lead service line samples collected under 567—subrule 43.7(4) and 41.4(1)*"c"*(2)"5," shall be first-draw samples.

2. First-draw tap samples for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours. First-draw samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be collected at an interior tap from which water is typically drawn for consumption. Non-first-draw samples collected in lieu of first-draw samples pursuant to 41.4(1)*"c"*(2)"5" shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the system or the system may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this paragraph. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

3. Service line samples collected to determine if the service line is directly contributing lead (as described in 567—subrule 43.7(4)) shall be one liter in volume and have stood motionless in the lead service line for at least six hours and be collected at the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line; tapping directly into the lead service line; or if the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.

4. A public water supply system shall collect each first-draw tap sample from the same sampling site from which it collected a previous sample. If, for any reason, the water system cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up tap sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

5. An NTNC system, or a CWS system that meets the criteria of 567—paragraphs 42.2(4)*"h"*(1)"1" and "2," that does not have enough taps that can supply first-draw samples, as defined in 567—40.2(455B), may apply to the department in writing to substitute non-first-draw samples. Such systems must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The department may waive the requirement for prior department approval of non-first-draw sample sites selected by the system, through written notification to the system.

(3) Number of samples. Water systems shall collect at least one sample during each monitoring period specified in 41.4(1)*"c"*(4) from the number of sites as listed in the column below titled "standard monitoring." A system conducting reduced monitoring under 41.4(1)*"c"*(4) shall collect at least one sample from the number of sites specified in the column titled "reduced monitoring" during each monitoring period specified in 41.4(1)*"c"*(4). Such reduced monitoring sites shall be representative of the sites required for standard monitoring. The department may specify sampling locations when a system is conducting reduced monitoring.

REQUIRED NUMBER OF LEAD/COPPER SAMPLES

System Size (Number of People Served)	Standard Monitoring (Number of Sites)	Reduced Monitoring (Number of Sites)
greater than 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
less than or equal to 100	5	5

(4) Timing of monitoring.

1. Initial tap sampling. The first six-month monitoring period for small, medium-size and large systems shall begin on the following dates:

System Size (Number of People Served)	First Six-month Monitoring Period Begins on:
greater than 50,000 (large system)	January 1, 1992
3,301 to 50,000 (medium system)	July 1, 1992
less than or equal to 3,300 (small system)	July 1, 1993

All large systems shall monitor during two consecutive six-month periods. All small and medium-size systems shall monitor during each six-month monitoring period until the system exceeds the lead or copper action level and is, therefore, required to implement the corrosion control treatment requirements under 567—paragraph 43.7(1)*"a,"* in which case the system shall continue monitoring in accordance with 41.4(1)*"c"*(4), or the system meets the lead and copper action levels during two consecutive six-month monitoring periods, in which case the system may reduce monitoring in accordance with 41.4(1)*"c"*(4).

2. Monitoring after installation of corrosion control and source water treatment. Large systems which install optimal corrosion control treatment pursuant to 567—subparagraph 43.7(1)*"d"*(4) shall monitor during two consecutive six-month monitoring periods by the date specified in

567—subparagraph 43.7(1)*"d"*(5). Small or medium-size systems which install optimal corrosion control treatment pursuant to 567—subparagraph 43.7(1)*"e"*(5) shall monitor during two consecutive six-month monitoring periods as specified in 567—subparagraph 43.7(1)*"e"*(6). Systems which install source water treatment shall monitor during two consecutive six-month monitoring periods by the date specified in 567—subparagraph 43.7(3)*"a"*(4).

3. Monitoring after the department specifies water quality parameter values for optimal corrosion control. After the department specifies the values for water quality control parameters under 567—paragraph 43.7(2)*"f,"* the system shall monitor during each subsequent six-month monitoring period, with the first monitoring period to begin on the date the department specifies the optimal values under 567—paragraph 43.7(2)*"f."*

4. Reduced monitoring.

- A small or medium-size water system that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the number of lead and copper samples according to 41.4(1)*"c"*(3) and reduce the frequency of sampling to once per year.
- Any public water supply system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during each of two consecutive six-month monitoring periods may reduce the monitoring frequency to once per year and reduce the number of lead and copper samples according to 41.4(1)*"c"*(3), upon written approval by the department. The department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with 567—subrule 42.4(2), and shall notify the system in writing when it determines that the system is eligible to commence reduced monitoring. Where appropriate, the department will revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.
- A small or medium-size water system that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if it receives written approval by the department. The department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with 567—subrule 42.4(2), and shall notify the system in writing when it determines that the system is eligible to reduce the monitoring frequency to once every three years. Where appropriate, the department will revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.
- A water system that reduces the number and frequency of sampling shall collect these samples from sites included in the pool of targeted sampling sites identified in 41.4(1)*"c"*(1). Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June through September, unless the department has approved a different sampling period. If approved by the department, the period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. The department shall designate a period that represents a time of normal operation for an NTNC system that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known.

Systems monitoring annually that have been collecting samples during the months of June through September and that receive department approval to alter their sample collection period must collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling.

Systems monitoring triennially that have been collecting samples during the months of June through September and that receive department approval to alter the sampling collection period must collect their

next round of samples during a time period that ends no later than 45 months after the previous round of sampling.

Subsequent rounds of sampling must be collected annually or triennially, as required by 41.4(1)*"c."*

Small systems that have been granted waivers pursuant to 41.4(1)*"c"*(7), that have been collecting samples during the months of June through September and that receive department approval to alter their sample collection period as previously stated, must collect their next round of samples before the end of the nine-year period.

- Any water system that demonstrates for two consecutive six-month monitoring periods that the 90th percentile tap water level computed under 41.4(1)*"b"*(3) is less than or equal to 0.005 mg/L for lead and is less than or equal to 0.65 mg/L for copper may reduce the number of samples in accordance with 41.4(1)*"c"*(3) and reduce the frequency of sampling to once every three calendar years, if approved by the department.
- A small or medium-size water system subject to reduced monitoring that exceeds the lead or copper action level shall resume sampling according to 41.4(1)*"c"*(4)"3" and collect the number of samples specified for standard monitoring in 41.4(1)*"c"*(3). Any such system shall also conduct water quality parameter monitoring in accordance with 41.4(1)*"d"*(2), (3), or (4), as appropriate, during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in 41.4(1)*"c"*(3) after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of 41.4(1)*"c"*(4)"4," first bulleted paragraph, and may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either 41.4(1)*"c"*(4)"4," third bulleted paragraph or fifth bulleted paragraph, and has received department approval.

Any water system subject to reduced monitoring frequency that fails to operate within the range of values for the water quality control parameters specified by the department under 567—paragraph 43.7(2)*"f"* for more than nine days in any six-month period specified in 41.4(1)*"d"*(4) shall resume tap water sampling according to 41.4(1)*"c"*(4)"3," collect the number of samples specified for standard monitoring in 41.4(1)*"c"*(3), and resume monitoring for water quality parameters within the distribution system in accordance with 41.4(1)*"d"*(4). The system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in 41.4(1)*"c"*(3) after it has completed two subsequent six-month rounds of monitoring that meet the criteria of 41.4(1)*"c"*(4)"4," second bulleted paragraph, and upon written approval from the department to resume reduced annual monitoring.

The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either 41.4(1)*"c"*(4)"4," third bulleted paragraph or fifth bulleted paragraph, and upon written approval from the department to resume triennial monitoring.

The system may reduce the number of water quality parameter tap water samples required in 41.4(1)*"d"*(5)"1" and the sampling frequency required in 41.4(1)*"d"*(5)"2." Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates that it has requalified for triennial monitoring, pursuant to 41.4(1)*"d"*(5)"2."

- Any water system subject to a reduced monitoring frequency under 41.4(1)*"c"*(4)"4" that either adds a new source of water or changes any water treatment shall inform the department in writing in accordance with 567—subparagraph 42.4(2)*"a"*(3). The department may require the system to resume sampling pursuant to 41.4(1)*"c"*(4)"3" and collect the number of samples specified for standard monitoring under 41.4(1)*"c"*(3), or take other appropriate steps such as increased water quality parameter monitoring or reevaluation of its corrosion control treatment given the potentially different water quality considerations.

(5) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of 41.4(1)*"c"* shall be considered by the system and the department in making any determinations (i.e., calculating the 90th percentile lead or copper level) under this subrule.

(6) Invalidation of lead or copper tap water samples. A sample invalidated under this paragraph does not count toward determining the lead or copper 90th percentile levels under 41.4(1)*"b"*(3) or toward meeting the minimum monitoring requirements of 41.4(1)*"c"*(3).

1. The department may invalidate a lead or copper tap water sample if at least one of the following conditions is met:

- The laboratory establishes that improper sample analysis caused erroneous results.
- The department determines that the sample was taken from a site that did not meet the site selection criteria of 567—41.4(455B).
- The sample container was damaged in transit to the laboratory.
- There is a substantial reason to believe that the sample was subject to tampering.
- The sample is not representative of water that would be consumed from the tap.
- The department determined that a major disruption of the water flow occurred in the system or building plumbing prior to sample collection, which resulted in lead or copper levels that were not representative of the system.

2. The system must report the results of all samples to the department and all supporting documentation for samples the system believes should be invalidated.

3. To invalidate a sample under 41.4(1)*"c"*(6)"1," the decision and the rationale for the decision must be documented in writing. The department may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

4. The system must collect replacement samples for any samples invalidated under subparagraph 41.4(1)*"c"*(6) if, after the invalidation of one or more samples, the system has too few samples to meet the minimum requirements of 41.4(1)*"c"*(3). Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the department invalidates the sample, or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(7) Monitoring waivers for small systems. Any small system that meets the criteria of this subparagraph may apply to the department to reduce the frequency of monitoring for lead and copper under subrule 41.4(1) to once every nine years if it meets all of the materials criteria specified in 41.4(1)*"c"*(7)"1" and the monitoring criteria specified in 41.4(1)*"c"*(7)"2."

1. Materials criteria. The system must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and copper-containing materials, as defined below:

- Lead. The water system must provide certification and supporting documentation to the department that the system is free of all lead-containing materials. The system does not contain any plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers. The system must be free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 U.S.C. 300-g-6(e).
- Copper. The water system must provide certification and supporting documentation to the department that the system contains no copper pipes or copper service lines.

2. Monitoring criteria. The system must have completed at least one six-month round of standard tap water monitoring for lead and copper at sites approved by the department and from the number of sites required by 41.4(1)*"c"*(3), and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing and copper-containing materials meet the following criteria:

- Lead levels. The system must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.
- Copper levels. The system must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

3. Department approval of waiver application. The department shall notify the system of its waiver determination in writing, including the basis of its decision and any condition of the waiver. The department may require as a waiver condition that the system conduct specific activities, such as limited monitoring and periodic outreach to customers to remind them to avoid installation of materials that would void the waiver. The system must continue monitoring for lead and copper at the tap as required by 41.4(1)*"c"*(4)"1" through "4," as appropriate, until the system receives written approval for the waiver from the department.

4. Monitoring frequency of systems with waivers.

- A system must conduct tap water monitoring for lead and copper in accordance with 41.4(1)*"c"*(4)"4" at the reduced number of sampling sites identified in subparagraph 41.4(1)*"c"*(3) at least once every nine years and provide the materials certification specified in 41.4(1)*"c"*(7)"1" for both lead and copper to the department along with the monitoring results.
- If a system with a waiver adds a new source of water or changes any water treatment, the system must notify the department in writing pursuant to 567—subparagraph 42.4(2)*"a"*(3). The department has the authority to require the system to add or modify waiver conditions, such as to require recertification that the system is free of lead-containing and copper-containing materials or to require additional monitoring, if the department deems such modifications are necessary to address treatment or source water changes at the system.
- If a system with a waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, such as from new construction or repairs, the system shall notify the department in writing no later than 60 days after becoming aware of such a change.

5. Continued eligibility. If the system continues to satisfy the requirements of 41.4(1)*"c"*(7)"4," the waiver will be renewed automatically, unless any of the conditions listed below occur. A system whose waiver has been revoked may reapply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of 41.4(1)*"c"*(7)"1" and 41.4(1)*"c"*(7)"2."

- A system no longer satisfies the materials criteria of 41.4(1)*"c"*(7)"1," or has a 90th percentile lead level greater than 0.005 mg/L or a 90th percentile copper level greater than 0.65 mg/L.
- The department notifies the system in writing that the waiver has been revoked, including the basis of its decision.

6. Requirements following waiver revocation. A system whose waiver has been revoked by the department is subject to the corrosion control treatment and lead and copper tap water monitoring requirements as follows:

- If the system exceeds the lead or copper action level, the system must implement corrosion control treatment in accordance with the deadlines specified in 567—paragraph 43.7(1)*"e,"* and any other applicable parts of 567—41.4(455B).
- If the system meets both the lead and copper action levels, the system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in subparagraph 41.4(1)*"c"*(3).

d. Water quality parameter monitoring requirements. All large public water supply systems (and all small and medium-size public water supply systems that exceed the lead or copper action level) shall monitor water quality parameters in addition to lead and copper in accordance with this subrule. The requirements of this subrule are summarized in the table at the end of 41.4(1)*"d"*(6). The water quality parameters must be reported in accordance with the monthly operation report requirements listed in 567—subrule 42.4(3).

(1) General requirements.

1. Sample collection methods. Tap samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Tap sampling

under this subrule is not required to be conducted at taps targeted for lead and copper sampling under 41.4(1)*"c"*(1)"1." Systems may conduct tap sampling for water quality parameters at sites used for coliform sampling. Samples collected at the entry point(s) to the distribution system shall be from locations representative of each source after treatment. If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

2. Number of samples.

● Systems shall collect two tap samples for applicable water quality parameters during each monitoring period specified in 41.4(1)*"d"*(2) through (5) from the following number of sites.

REQUIRED NUMBER OF SAMPLES: WATER QUALITY PARAMETERS

System Size (Number of People Served)	Number of Sites for Water Quality Parameters
greater than 100,000	25
10,001 to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
less than or equal to 100	1

● Except as provided in 41.4(1)*"d"*(3)*"*3," systems shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in 41.4(1)*"d"*(2). During each monitoring period specified in 41.4(1)*"d"*(2). During each monitoring period specified in 41.4(1)*"d"*(3) through (5), systems shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

(2) Initial sampling. Large water systems shall measure the applicable water quality parameters as specified below at taps and at each entry point to the distribution system during each six-month monitoring period specified in 41.4(1)*"c"*(4)"1." Small and medium-size systems shall measure the applicable water quality parameters at taps and at each entry point to the distribution system during each six-month monitoring period specified in 41.4(1)*"c"*(4)"1" during which the system exceeds the lead or copper action level. Tap water and entry point monitoring shall include: pH; alkalinity; orthophosphate, when an inhibitor containing a phosphate compound is used; silica, when an inhibitor containing a silicate compound is used; calcium; conductivity; and water temperature.

(3) Monitoring after installation of corrosion control. Large systems which install optimal corrosion control treatment pursuant to 567—subparagraph 43.7(1)*"d"*(4) shall measure the water quality parameters at the locations and frequencies specified below during each six-month monitoring period specified in 41.4(1)*"c"*(4)"2." Small or medium-size systems which install optimal corrosion control treatment shall conduct such monitoring during each six-month monitoring period specified in 41.4(1)*"c"*(4)"2" in which the system exceeds the lead or copper action level.

1. Tap water monitoring shall include two samples for: pH; alkalinity; orthophosphate, when an inhibitor containing a phosphate compound is used; silica, when an inhibitor containing a silicate compound is used; calcium, when calcium carbonate stabilization is used as part of corrosion control.

2. Except as provided for in 41.4(1)*"d"*(3)*"*3," monitoring at each entry point to the distribution system shall include one sample every two weeks (biweekly) for: pH; a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration when alkalinity is adjusted as part of optimal corrosion control; and a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable) when a corrosion inhibitor is used as part of optimal corrosion control.

3. Any groundwater system can limit entry point sampling described in 41.4(1)*"d"*(3)"3" to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated groundwater sources mixes with water from treated groundwater sources, the

system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this paragraph, the system shall provide to the department written information identifying the selected entry points and documentation sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system, including information on seasonal variability.

(4) Monitoring after the department specifies water quality parameter values for optimal corrosion control. After the department specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment, all large systems shall measure the applicable water quality parameters according to 41.4(1)*"d"*(3) and determine compliance with the requirements of 567—paragraph 43.7(2)*"g"* every six months, with the first six-month period to begin on the date the department specifies the optimal values under 567—paragraph 43.7(2)*"f."* Any small or medium-size system shall conduct such monitoring during each monitoring period specified in 41.4(1)*"c"*(4)"3" in which the system exceeds the lead or copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to 41.4(1)*"c"*(4)"4" at the time of the action level exceedance, the end of the applicable six-month period under this paragraph shall coincide with the end of the applicable monitoring period under 41.4(1)*"c"*(4)"4." Compliance with department-designated optimal water quality parameter values shall be determined as specified in 567—paragraph 43.7(2)*"g."*

(5) Reduced monitoring.

1. Public water supply systems that maintain the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under 41.4(1)*"c"*(4) shall continue monitoring at the entry point(s) to the distribution system as specified in 567—paragraph 43.7(2)*"f."* Such system may collect two tap samples for applicable water quality parameters from the following reduced number of sites during each six-month monitoring period.

REDUCED WATER QUALITY PARAMETER MONITORING

System Size (Number of People Served)	Reduced Number of Sites for Water Quality Parameters
greater than 100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
less than or equal to 100	1

2. A public water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during three consecutive years of monitoring may reduce the frequency with which the system collects the number of tap samples for applicable water quality parameters specified in 41.4(1)*"d"*(5) from every six months to annually. Any system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during three consecutive years of annual monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in 41.4(1)*"d"*(5) from annually to every three years.

A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in 41.4(1)*"d"*(5)"1" to every three years if it demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to 0.005 mg/L, that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L, and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f."*

3. A public water system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

4. Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the department under 567—paragraph 43.7(2)*"f"* for more than nine days in any six-month period specified in 567—paragraph 43.7(2)*"g"* shall resume distribution system tap water sampling in accordance with the number and frequency requirements in 41.4(1)*"d"*(3). Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in 41.4(1)*"d"*(5)"1" after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that paragraph or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria in 41.4(1)*"d"*(5)"2."

(6) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of this subrule shall be considered in making any determinations (i.e., determining concentrations of water quality parameters) under this subrule or 567—subrule 43.7(2).

SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS[1]

Monitoring Period	Location	Parameters[2]	Frequency
Initial Monitoring	Taps and at entry point(s) to distribution systems	pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature	Every 6 months
After Installation of Corrosion Control	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months
	Entry point(s) to distribution system[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every two weeks
After Department Specifies Parameter Values for Optimal Corrosion Control	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months
	Entry point(s) to distribution system[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every two weeks
Reduced Monitoring	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months, annually[7], or every 3 years[8], at a reduced number of sites
	Entry point(s) to distribution system[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every two weeks

[1]Table is for illustrative purposes; consult the text of this subrule for precise regulatory requirements.

[2]Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

[3]Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

[4]Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

[5]Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

[6]Groundwater systems may limit monitoring to representative locations throughout the systems.

[7]Water systems may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of monitoring.

[8]Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every three years if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to

0.65mg/L, and the range of water quality parameters designated by the department under 567—paragraph 43.7(2)*"f"* as representing optimal corrosion control during two consecutive six-month monitoring periods.

e. Lead and copper source water monitoring requirements.

(1) Sample location, collection methods, and number of samples.

1. A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with 41.4(1)*"c"* shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

- Groundwater systems shall take a minimum of one sample at every entry point to the distribution system (source entry point) which is representative of each well after treatment. The system shall take one sample at the same source entry point unless conditions make another sampling location more representative of each source or treatment plant.
- Surface water systems and any system with a combination of surface water and groundwater shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.
- If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions, when water is representative of all sources being used.

2. Where the results of sampling indicate an exceedance of maximum permissible source water levels established under 567—subparagraph 43.7(3)*"b"*(4), the department may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point. If a confirmation sample is taken for lead or copper, then the results of the initial and confirmation samples shall be averaged in determining compliance with the maximum permissible levels. Lead and copper analytical results below the detection limit shall be considered to be zero. Analytical results above the detection limit but below the practical quantification level (PQL) shall either be considered as the measured value or be considered one-half the PQL.

(2) Monitoring after system exceeds tap water action level. Any system which exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system within six months after the exceedance.

(3) Monitoring after installation of source water treatment. Any system which installs source water treatment pursuant to 567—subparagraph 43.7(3)*"a"*(3) shall collect an additional source water sample from each entry point to the distribution system during two consecutive six-month monitoring periods by the deadline specified.

(4) Monitoring frequency after the department specifies maximum permissible source water levels or determines that source water treatment is not needed.

1. A system shall monitor at the frequency specified below in cases where the department specifies maximum permissible source water levels under 567—subparagraph 43.7(3)*"b"*(4) or determines that the system is not required to install source water treatment under 567—subparagraph 43.7(3)*"b"*(2). A water system using only groundwater shall collect samples once during the three-year compliance period in effect when the department makes this determination. Such systems shall collect samples once during each subsequent compliance period. A public water system using surface water (or a combination of surface and groundwater) shall collect samples once during each year, the first annual monitoring period to begin on the date on which the department makes this determination.

2. A system using only groundwater is not required to conduct source water sampling for lead or copper if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling.

(5) Reduced monitoring frequency.

1. A water system using only groundwater may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle if the system meets one of the following criteria:

- The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead or copper concentrations specified by the department in 567—subparagraph 43.7(3)*"b"*(4) during at least three consecutive compliance periods under 41.4(1)*"e"*(4)"1"; or
- The department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under 41.4(1)*"e"*(4)"1," the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

2. A water system using surface water (or a combination of surface water and groundwater) may reduce the monitoring frequency in 41.4(1)*"e"*(4)"1" to once during each nine-year compliance cycle if that system meets one of the following criteria:

- The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the department in 567—subparagraph 43.7(3)*"b"*(4) for at least three consecutive years; or
- The department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

3. A water system that uses a new source of water is not eligible for reduced monitoring for lead or copper until concentrations in samples collected from the new source during three consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified.

f. Corrosivity monitoring protocol — special monitoring for corrosivity characteristics. Suppliers of water for community public water systems shall collect samples from a representative entry point to the water distribution system for the purpose of analysis to determine the corrosivity characteristics of the water. The determination of corrosivity characteristics of water shall only include one round of sampling, except in cases where the department concludes additional monitoring is necessary due to variability of the raw water sources. Sampling requirements and approved analytical methods are as follows:

(1) Surface water systems. Systems utilizing a surface water source either in whole or in part shall collect two samples per plant for the purpose of determining the corrosivity characteristics. One of these samples is to be collected during the midwinter months and the other during midsummer.

(2) Groundwater systems. Systems utilizing groundwater sources shall collect one sample per plant or source, except systems with multiple plants that do not alter the corrosivity characteristics identified in 41.4(1)*"f"*(3) or systems served by multiple wells drawing raw water from a single aquifer may, with departmental approval, be considered one treatment plant or source when determining the number of samples required.

(3) Corrosivity characteristics analytical parameters. Determination of corrosivity characteristics of water shall include measurements of pH, calcium hardness, alkalinity, temperature, total dissolved solids (total filterable residue), and calculation of the Langelier Index. In addition, sulfate and chloride monitoring may be required by the department. At the department's discretion, the Aggressiveness Index test may be substituted for the Langelier Index test.

(4) Corrosivity indices methodology. The following methods must be used to calculate the corrosivity indices:

1. Aggressiveness Index—"ANSI/AWWA C401-93: AWWA Standard for the Selection of Asbestos Cement Pressure Pipe, 4″–16″ for Water Distribution Systems," American Water Works Association, Denver, CO.

2. Langelier Index—"Standard Methods for the Examination of Water and Wastewater," 14th edition, American Public Health Association, 1015 15th Street NW, Washington, DC 20005 (1975), Method 203, pp. 61-63.

(5) Distribution system construction materials. Community and nontransient noncommunity water supply systems shall identify whether the following construction materials are present in their distribution system and report to the department:

1. Lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing.
2. Copper from piping and alloys, service lines, and home plumbing.
3. Galvanized piping, service lines, and home plumbing.
4. Ferrous piping materials such as cast iron and steel.
5. Asbestos cement pipe.
6. Vinyl lined asbestos cement pipe.
7. Coal tar lined pipes and tanks.
8. Pipe with asbestos cement lining.

g. Lead, copper, and water quality parameter analytical methods.

(1) Analytical methods. Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, any person under the supervision of a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83. Analyses under this subrule for lead and copper shall only be conducted by laboratories that have been certified by the department, pursuant to 567—Chapter 83. The following methods must be used:

LEAD, COPPER AND WATER QUALITY PARAMETER ANALYTICAL METHODS

Contaminant	EPA Contaminant Code	Methodology[9]	Reference (Method Number)			
			EPA	ASTM[3]	SM	USGS[5]
Alkalinity	1927	Titrimetric		D1067-92B	2320 B[11]	
		Electrometric titration				I-1030-85
Calcium	1919	EDTA titrimetric		D511-93A	3500-Ca D[4]	
					3500-Ca B[12]	
		Atomic absorption; direct aspiration		D511-93B	3111 B[4]	
		Inductively coupled plasma	200.7[2]		3120 B[11]	
Chloride	1017	Ion chromatography	300.0[8]	D4327-97	4110 B[11]	
		Potentiometric titration			4500-Cl⁻ D[11]	
		Argentometric titration		D512-89B	4500-Cl⁻ B[11]	
Conductivity	1064	Conductance		D1125-95A	2510 B[11]	
Copper[6]	1022	Atomic absorption; furnace technique		D1688-95C	3113 B[4]	
		Atomic absorption; direct aspiration		D1688-95A	3111 B[4]	
		Inductively coupled plasma	200.7[2]		3120 B[11]	
		Inductively coupled plasma; mass spectrometry	200.8[2]			
		Atomic absorption; platform furnace	200.9[2]			
Lead[6]	1030	Atomic absorption; furnace technique		D3559-96D	3113 B[4]	
		Inductively coupled plasma; mass spectrometry	200.8[2]			
		Atomic absorption; platform furnace technique	200.9[2]			
		Differential pulse anodic stripping voltammatry				Method 1001[10]
pH	1925	Electrometric	150.1[1]	D1293-95	4500-H+ B[11]	
			150.2[1]			

Contaminant	EPA Contaminant Code	Methodology[9]	Reference (Method Number)			
			EPA	ASTM[3]	SM	USGS[5]
Orthophosphate (Unfiltered, no digestion or hydrolysis)	1044	Colorimetric, automated, ascorbic acid	365.1[8]		4500-P F[11]	
		Colorimetric, ascorbic acid, single reagent		D515-88A	4500-P E[11]	
		Colorimetric, phosphomolybdate;				I-1602-85
		Automated-segmented flow				I-2601-90[8]
		Automated discrete				I-2598-85
		Ion chromatography	300.0[7]	D4327-97	4110 B[11]	
Silica	1049	Colorimetric, molybdate blue				I-1700-85
		Automated-segmented flow				I-2700-85
		Colorimetric		D859-95		
		Molybdosilicate			4500-Si D[4]	
					4500-SiO_2 C[12]	
		Heteropoly blue			4500-Si E	
					4500-SiO_2 D[12]	
		Automated method for molybdate-reactive silica			4500-Si F 4500-SiO_2 E[12]	
		Inductively coupled plasma[6]	200.7[2]		3120 B[11]	
Sulfate	1055	Ion chromatography	300.0[7]	D4327-97	4110[11]	
		Automated methylthymol blue	375.2[7]		4500-SO_4 F[11]	
		Gravimetric			4500-SO_4 C[11] 4500-SO_4 D[11]	
		Turbidimetric		D516-90	4500-SO_4 E[11]	
Temperature	1996	Thermometric			2550 B[11]	
Total Filterable Residue (TDS)	1930	Gravimetric			2540 C[11]	

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC.

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983. Available at NTIS as PB84-128677.

[2]"Methods for the Determination of Metals in Environmental Samples," EPA-600/4-91-010, June 1991. Available at NTIS as PB91-231498.

[3]Annual Book of ASTM Standards, 1994, 1996, or 1999, Vols. 11.01 and 11.02, American Society for Testing and Materials, International; any year containing the cited version of the method may be used. The previous versions of D1688-95A and D1688-95C (copper), D3559-95D (lead), D1293-95 (pH), D1125-91A (conductivity), and D859-94 (silica) are also approved. These previous versions, D1688-90A, C, D3559-90D, D1293-84, D1125-91A and D859-88, respectively, are located in the Annual Book of ASTM Standards, 1994, Volume 11.01. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[4]18th and 19th editions of Standard Methods for the Examination of Water and Wastewater, 1992 and 1995, respectively, American Public Health Association. Either edition may be used. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[5]Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd ed., 1989. Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

[6]Samples may not be filtered. Samples that contain less than 1 NTU (Nephelometric turbidity unit) and are properly preserved (concentrated nitric acid to pH < 2) may be analyzed directly (without digestion) for total metals; otherwise, digestion is required. When digestion is required, the total recoverable technique as defined in the method must be used.

[7]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA/600/R-93/100, August 1993. Available at NTIS as PB94-120821.

[8]"Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments, Open File Report 93-125." Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

[9]Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. Preconcentration may be required for direct analysis of lead by Methods 200.9, 3113B, and 3559-90D unless multiple in-furnace depositions are made.

[10]The description for Method 1001 is available from Palintest, Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY 41018; or from the Hach Company, P.O. Box 389, Loveland, CO 80538.

[11]The 18th, 19th, and 20th editions of Standard Methods for the Examination of Water and Wastewater, 1992, 1995, and 1998, respectively, American Public Health Association. Any edition may be used. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[12]The 20th edition of Standard Methods for the Examination of Water and Wastewater, 1998, American Public Health Association. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

(2) Certified laboratory requirements. Lead and copper analyses under this subrule shall only be conducted by laboratories that have been certified by the department and are in compliance with the requirements of 567—Chapter 83.

(3) All lead and copper levels measured between the practical quantitation limit (PQL) and method detection limit (MDL) must be either reported as measured or they can be reported as one-half the PQL specified for lead and copper in 567—paragraph 83.6(7)*"a"*(5)"2." All levels below the lead and copper MDLs must be reported as zero.

41.4(2) *Lead, copper, and corrosivity regulation by the setting of an MCL.* Reserved.

567—41.5(455B) Organic chemicals.

41.5(1) *MCLs and other requirements for organic chemicals.* Maximum contaminant levels for two classes of organic chemical contaminants specified in 41.5(1)*"b"* apply to community water systems and nontransient noncommunity water systems as specified herein. The two referenced organic chemical classes are volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs).

The requirements also contain analytical method requirements and monitoring requirements referenced in 41.5(1)*"b"* and *"c."* Best available technology (BAT) for control of these organic contaminants is referenced in 567—paragraph 43.3(10)*"a."*

a. Applicability. The maximum contaminant levels for volatile and synthetic organic contaminants apply to community and nontransient noncommunity water systems. Compliance with the volatile and synthetic organic contaminant maximum contaminant level is calculated pursuant to 41.5(1)*"b."*

b. Maximum contaminant levels (MCLs) and analytical methodology for organic compounds. The maximum contaminant levels for organic chemicals are listed in the table in subparagraph 41.5(1)*"b"*(1). Analyses for the contaminants in this subrule shall be conducted using the following methods, or their equivalent as approved by EPA.

(1) Table:

ORGANIC CHEMICAL CONTAMINANTS, CODES, MCLS, ANALYTICAL METHODS, AND DETECTION LIMITS

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology[1]	Detection Limit (mg/L)
Volatile Organic Chemicals (VOCs):				
Benzene	2990	0.005	502.2, 524.2	0.0005
Carbon tetrachloride	2982	0.005	502.2, 524.2, 551.1	0.0005
Chlorobenzene (mono)	2989	0.1	502.2, 524.2	0.0005
1,2-Dichlorobenzene (ortho)	2968	0.6	502.2, 524.2	0.0005
1,4-Dichlorobenzene (para)	2969	0.075	502.2, 524.2	0.0005
1,2-Dichloroethane	2980	0.005	502.2, 524.2	0.0005
1,1-Dichloroethylene	2977	0.007	502.2, 524.2	0.0005
cis-1,2-Dichloroethylene	2380	0.07	502.2, 524.2	0.0005
trans-1,2-Dichloroethylene	2979	0.1	502.2, 524.2	0.0005
Dichloromethane	2964	0.005	502.2, 524.2	0.0005
1,2-Dichloropropane	2983*	0.005	502.2, 524.2	0.0005
Ethylbenzene	2992	0.7	502.2, 524.2	0.0005
Styrene	2996	0.1	502.2, 524.2	0.0005
Tetrachloroethylene	2987	0.005	502.2, 524.2, 551.1	0.0005
Toluene	2991	1	502.2, 524.2	0.0005
1,1,1-Trichloroethane	2981	0.2	502.2, 524.2, 551.1	0.0005
Trichloroethylene	2984	0.005	502.2, 524.2, 551.1	0.0005
1,2,4-Trichlorobenzene	2378	0.07	502.2, 524.2	0.0005
1,1,2-Trichloroethane	2985	0.005	502.2, 524.2, 551.1	0.0005
Vinyl chloride	2976	0.002	502.2, 524.2	0.0005
Xylenes (total)	2955*	10	502.2, 524.2	0.0005
Synthetic Organic Chemicals (SOCs):				
Alachlor[3]	2051	0.002	505, 507, 508.1, 525.2, 551.1	0.0002
Aldicarb	2047	0.003	531.1, 6610	0.0005
Aldicarb sulfone	2044	0.002	531.1, 6610	0.0008
Aldicarb sulfoxide	2043	0.004	531.1, 6610	0.0005
Atrazine[3]	2050	0.003	505, 507, 508.1, 525.2, 551.1, Syngenta AG-625	0.0001
Benzo(a)pyrene	2306	0.0002	525.2, 550, 550.1	0.00002
Carbofuran	2046	0.04	531.1, 531.2, 6610	0.0009
Chlordane[3]	2959	0.002	505, 508, 508.1, 525.2	0.0002
2,4-D[6] (as acids, salts, and esters)	2105	0.07	515.1, 515.2, 515.3, 515.4, 555, D5317-93	0.0001
Dalapon	2031	0.2	515.1, 515.3, 515.4, 552.1, 552.2	0.001
1,2-Dibromo-3-chloropropane (DBCP)	2931	0.0002	504.1, 551.1	0.00002
Di(2-ethylhexyl)adipate	2035	0.4	506, 525.2	0.0006
Di(2-ethylhexyl)phthalate	2039	0.006	506, 525.2	0.0006
Dinoseb[6]	2041	0.007	515.1, 515.2, 515.3, 515.4, 555	0.0002
Diquat	2032	0.02	549.2	0.0004
Endothall	2033	0.1	548.1	0.009

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology[1]	Detection Limit (mg/L)
Endrin[3]	2005	0.002	505, 508, 508.1, 525.2, 551.1	0.00001
Ethylene dibromide (EDB)	2946	0.00005	504.1, 551.1	0.00001
Glyphosate	2034	0.7	547, 6651	0.006
Heptachlor[3]	2065	0.0004	505, 508, 508.1, 525.2, 551.1	0.00004
Heptachlor epoxide[3]	2067	0.0002	505, 508, 508.1, 525.2, 551.1	0.00002
Hexachlorobenzene[3]	2274	0.001	505, 508, 508.1, 525.2, 551.1	0.0001
Hexachlorocyclopentadiene[3]	2042	0.05	505, 508, 508.1, 525.2, 551.1	0.0001
Lindane (gamma BHC)[3]	2010	0.0002	505, 508, 508.1, 525.2, 551.1	0.00002
Methoxychlor[3]	2015	0.04	505, 508, 508.1, 525.2, 551.1	0.0001
Oxamyl	2036	0.2	531.1, 531.2, 6610	0.002
Pentachlorophenol	2326	0.001	515.1, 515.2, 515.3, 515.4, 525.2, 555, D5317-93	0.00004
Picloram[3,6]	2040	0.5	515.1, 515.2, 515.3, 515.4, 555, D5317-93	0.0001
Polychlorinated biphenyls[4] (as decachlorobiphenyl) (as Arochlors)[3]	2383	0.0005	508A 505, 508, 508.1, 525.2	0.0001
Simazine[3]	2037	0.004	505, 507, 508.1, 525.2, 551.1	0.00007
2,3,7,8-TCDD (dioxin)	2063	$3x10^{-8}$	1613	$5x10^{-9}$
2,4,5-TP[6] (Silvex)	2110	0.05	515.1, 515.2, 515.3, 515.4, 555, D5317-93	0.0002
Toxaphene[3]	2020	0.003	505, 508, 508.1, 525.2	0.001

*As of January 1, 1999, the contaminant codes for the following compounds were changed from the Iowa Contaminant Code to the EPA Contaminant Code:

Contaminant	Iowa Contaminant Code (Old)	EPA Contaminant Code (New)
1,2 Dichloropropane	2325	2983
Xylenes (total)	2974	2955

[1]Analyses for the contaminants in this section shall be conducted using the following EPA methods or their equivalent as approved by EPA. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue NW, Room B102, Washington, DC 20460 (telephone: (202) 566-2426); or at the Office of the Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847).

Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88-039, December 1988, Revised July 1991 (NTIS PB91-231480): Methods 508A and 515.1.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement I, EPA-600/4-90-020, July 1990 (NTIS PB91-146027): Methods 547, 550, 550.1.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement II, EPA-600/R-92-129, August 1992 (NTIS PB92-207703): Methods 548.1, 552.1, 555.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement III, EPA-600/R-95-131, August 1995 (NTIS PB95-261616): Methods 502.2, 504.1, 505, 506, 507, 508, 508.1, 515.2, 524.2, 525.2, 531.1, 551.1, 552.2.

Method 1613 "Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope-Dilution HRGC/HRMS," EPA-821-B-94-005, October 1994 (NTIS PB95-104774).

The following American Public Health Association (APHA) documents are available from APHA, 1015 Fifteenth Street NW, Washington, DC 20005.

Supplement to the 18th Edition of Standard Methods for the Examination of Water and Wastewater, 1994, Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995, or 20th edition, 1998 (any of the three editions may be used), APHA: Method 6610.

Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998, (any of the three editions may be used), APHA: Method 6651.

The following American Society for Testing and Materials (ASTM) method is available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

Annual book of ASTM Standards, 1999, Vol. 11.02 (or any edition published after 1993), ASTM: D5317-93.

Methods 515.3 and 549.2 are available from U.S. EPA NERL, 26 W. Martin Luther King Drive, Cincinnati, OH 45268.

Method 515.4, "Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection," Revision 1.0, April 2000, EPA 815/B-00/001, available at www.epa.gov/safewater/methods/sourcalt.html.

Method 531.2, "Measurement of n-Methylcarbamoyloximes and n-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Photocol-umn Derivatization," Revision 1.0, September 2001, EPA 815/B-01/002, available at www.epa.gov/safewater/methods/sourcalt.html.

Syngenta AG-625 Method, "Atrazine in Drinking Water by Immunoassay," February 2001, is available from Syngenta Crop Protection, Inc., 410 Swing Road, P.O. Box 18300, Greensboro, NC 27419, telephone (336)632-6000.

Other required analytical test procedures germane to the conduct of these analyses are contained in Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October 1994 (NTIS PB95-104766).

[2]Reserved.

[3]Substitution of the detector specified in Method 505, 507, 508, or 508.1 for the purpose of achieving lower detection limits is allowed as follows. Either an electron capture or nitrogen-phosphorus detector may be used provided all regulatory requirements and quality control criteria are met.

[4]PCBs are qualitatively identified as Aroclors and measured for compliance purposes as decachlorobiphenyl. Users of Method 505 may have more difficulty in achieving the required detection limits than users of Method 508. 508.1, or 525.2.

[5]Reserved.

[6]Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in EPA Methods 515.1, 515.2, 515.3, 515.4, and 555, and ASTM Method D5317-93.

(2) Organic chemical compliance calculations. Compliance with 41.5(1)*"b"*(1) shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL listed in 41.5(1)*"b"*(1), the system is in violation of the MCL. If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected. If a sample result is less than the detection limit, zero will be used when calculating the running annual average. If the system is in violation of an MCL, the water supplier is required to give notice to the department in accordance with 567—subrule 42.4(1) and to notify the public as required by 567—42.1(455B).

1. Systems monitoring more than once per year for VOC or SOC contaminants. For systems which monitor more than once per year, compliance with the MCL is determined by a running annual average of all samples collected at each sampling point.

2. Systems monitoring annually or less frequently for VOC contaminants. Systems which monitor annually or less frequently and whose VOC sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. However, if any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is immediately out of compliance with the MCL.

3. Systems monitoring annually or less frequently for SOC contaminants. Systems which monitor annually or less frequently and whose SOC sample result exceeds the regulatory detection limit specified

in subparagraph 41.5(1)*"b"*(1) must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. However, if any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is immediately out of compliance with the MCL.

(3) Treatment techniques for acrylamide and epichlorohydrin. Each public water supply system must certify annually in writing to the department (using third-party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

Acrylamide = 0.05% dosed at 1 ppm (or equivalent)

Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent)

Certifications can rely on information provided by manufacturers or third parties, as approved by the department.

c. Organic chemical monitoring requirements. Each public water system shall monitor at the time designated within each compliance period. All new systems or systems that use a new source of water must demonstrate compliance with the MCLs within the time period specified by the department. The system must also comply with the initial sampling frequencies specified by the department to ensure the system can demonstrate compliance with the MCLs. A source of water that is determined by the department to be a new source/entry point is considered to be a new source for the purposes of paragraph 41.5(1)*"c."* Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this paragraph.

(1) Routine volatile organic chemical (VOC) monitoring requirements. Beginning on January 1, 1993, community water supplies and NTNC water supplies shall conduct monitoring of the contaminants listed in 41.5(1)*"b"*(1) for the purpose of determining compliance with the maximum contaminant level.

(2) VOC monitoring protocol.

1. VOC groundwater monitoring protocol. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

2. VOC surface water monitoring protocol. Surface water systems (and combined surface/groundwater systems) shall take a minimum of one sample at each entry point to the distribution system after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

3. Multiple sources. If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used). If a representative sample of all water sources cannot be obtained, as determined by the department, separate source/entry points with the appropriate monitoring requirements will be assigned by the department.

4. Initial VOCs monitoring frequency. Each community and nontransient noncommunity water system shall take four consecutive quarterly samples for each contaminant listed in 41.5(1)*"b"*(1) during each compliance period, beginning in the initial compliance period. If the initial monitoring for contaminants listed in 41.5(1)*"b"*(1) has been completed by December 31, 1992, and the system did not detect any contaminant listed in 41.5(1)*"b"*(1), then each groundwater and surface water system shall take one sample annually beginning with the initial compliance period.

5. Reduced VOC monitoring for groundwater systems. After a minimum of three years of annual sampling, the department may allow groundwater systems with no previous detection of any contaminant listed in 41.5(1)*"b"*(1) to take one sample during each compliance period.

6. VOC monitoring waivers. Each community and nontransient noncommunity groundwater system which does not detect a contaminant listed in 41.5(1)*"b"*(1) may apply to the department for a waiver from the requirements of 41.5(1)*"c"*(2)"4" and "5" after completing the initial monitoring. A waiver shall be effective for no more than six years (two compliance periods). The department may also

issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene. Detection is defined as greater than or equal to 0.0005 mg/L.

7. Bases of a VOC monitoring waiver. The department may grant a waiver if the department finds that there has not been any knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

- Previous analytical results.
- The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.
- The environmental persistence and transport of the contaminants.
- The number of persons served by the public water system and the proximity of a smaller system to a larger system, and
- How well the water source is protected against contamination, such as whether it is a surface or groundwater system. Groundwater systems must consider factors such as depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

8. VOC monitoring waiver requirements for groundwater systems. As a condition of the waiver, a groundwater system must take one sample at each sampling point during the time the waiver is effective (i.e., one sample during two compliance periods or six years) and update its vulnerability assessment considering the factors listed in 41.5(1)*"c"*(2)"7." Based on this vulnerability assessment the department must reconfirm that the system is nonvulnerable. If the department does not reconfirm within three years of the initial vulnerability determination, then the waiver is invalidated and the system is required to sample annually as specified in 41.5(1)*"c"*(2)"4."

9. VOC monitoring waiver requirements for surface water systems. Each community and nontransient noncommunity surface water system which does not detect a contaminant listed in 41.5(1)*"b"*(1) may apply to the department for a waiver from the requirements of 41.5(1)*"c"*(2)"4" after completing the initial monitoring. Systems meeting this criterion must be determined by the department to be nonvulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the department (if any).

10. Increased VOC monitoring. If a contaminant listed in 41.5(1)*"b"*(1) is detected at a level exceeding 0.0005 mg/L in any sample, then:

The system must monitor quarterly at each sampling point which resulted in a detection.

The department may decrease the quarterly monitoring requirement specified in 41.5(1)*"c"*(2)"4" provided it has determined that the system is reliably and consistently below the maximum contaminant level. In no case shall the department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

If the department determines that the system is reliably and consistently below the MCL, the department may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter(s) which previously yielded the highest analytical result.

Systems which have three consecutive annual samples with no detection of a contaminant may apply to the department for a waiver as specified in 41.5(1)*"c"*(2)"6."

Groundwater systems which have detected one or more of the following two-carbon organic compounds: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the department may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the department.

11. VOCs reliably and consistently below the MCL. Systems which violate the MCL requirements of 41.5(1)*"b"*(1) must monitor quarterly. After a minimum of four consecutive quarterly samples which show the system is in compliance and the department determines that the system is reliably and consistently below the maximum contaminant level, the system may monitor at the frequency and times specified in 41.5(1)*"c"*(2)"10," third unnumbered paragraph (following approval by the department).

(3) Routine and repeat synthetic organic chemical (SOC) monitoring requirements. Analysis of the synthetic organic contaminants listed in 41.5(1)*"b"*(1) for the purposes of determining compliance with the maximum contaminant level shall be conducted as follows:

1. SOC groundwater monitoring protocols. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. SOC surface water monitoring protocols. Surface water systems shall take a minimum of one sample at each entry point to the distribution system after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

3. Multiple sources. If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used). If a representative sample of all water sources cannot be obtained, as determined by the department, separate source/entry points with the appropriate monitoring requirements will be assigned by the department.

4. SOC monitoring frequency. Community and nontransient noncommunity water systems shall take four consecutive quarterly samples for each contaminant listed in 41.5(1)*"b"*(1) during each compliance period beginning with the compliance period starting January 1, 1993. Systems serving more than 3,300 persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of two quarterly samples in one year during each repeat compliance period. Systems serving less than or equal to 3,300 persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one sample during each repeat compliance period.

5. SOC monitoring waivers. Each community and nontransient water system may apply to the department for a waiver from the requirements of 41.5(1)*"c"*(3)"4." A system must reapply for a waiver for each compliance period.

6. Bases of an SOC monitoring waiver. The department may grant a waiver if the department finds that there has been no knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If previous use of the contaminant is unknown or it has been used previously, then the department shall determine whether a waiver may be granted by considering:

- Previous analytical results.
- The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.
- The environmental persistence and transport of the pesticide or PCBs.
- How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing.
- Elevated nitrate levels at the water supply source, and
- Use of PCBs in equipment used in the production, storage, or distribution of water (i.e., PCBs used in pumps and transformers).

7. Increased SOC monitoring. If a synthetic organic contaminant listed in 41.5(1)*"b"*(1) is detected in any sample, then:

- Each system must monitor quarterly at each sampling point which resulted in a detection.
- The department may decrease the quarterly SOC monitoring requirement if the system is reliably and consistently below the maximum contaminant level. In no case shall the department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.
- After the department determines the system is reliably and consistently below the maximum contaminant level, the system may monitor annually. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result.
- Systems which have three consecutive annual samples with no detection of a contaminant may apply to the department for a waiver as specified in 41.5(1)*"c"*(3)"6."
- If monitoring results in detection of one or more of certain related contaminants (aldicarb, aldicarb sulfone, aldicarb sulfoxide, heptachlor, and heptachlor epoxide), then subsequent monitoring shall analyze for all related contaminants.

8. MCL violation and reliably/consistently below the MCL. Systems which violate the requirements of 41.5(1)*"b"* must monitor quarterly. After a minimum of four quarterly samples show the system is in compliance and the department determines the system is reliably and consistently below the MCL, the system shall monitor at the frequency specified in 41.5(1)*"c"*(3)"7."

(4) Organic chemical (SOC and VOC) confirmation samples. The department may require a confirmation sample for positive or negative results. If a confirmation sample is required by the department, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by 41.5(1)*"b"*(2). The department has discretion to disregard results of obvious sampling errors from this calculation.

(5) Grandfathered organic chemical (SOC and VOC) data. The department may allow the use of monitoring data collected after January 1, 1988, for VOCs and January 1, 1990, for SOCs required under Section 1445 of the Safe Drinking Water Act for purposes of initial monitoring compliance. If the data are generally consistent with the other requirements in this subparagraph, the department may use such data (i.e., a single sample rather than four quarterly samples) to satisfy the initial monitoring requirement for the initial compliance period beginning January 1, 1993. Systems which use grandfathered samples for VOCs and did not detect any contaminants listed in 41.5(1)*"b"*(1) shall begin monitoring annually in accordance with 41.5(1)*"c"*(2) beginning January 1, 1993.

(6) Increased organic chemical (SOC and VOC) monitoring. The department may increase the required monitoring frequency, where necessary, to detect variations within the system (e.g., fluctuations in concentration due to seasonal use, changes in water source, changes to treatment facilities or normal operation thereof).

(7) Organic chemical (SOC and VOC) vulnerability assessment criteria. Vulnerability of each public water system shall be determined by the department based upon an assessment of the following factors.

1. VOC vulnerability assessment criteria—previous monitoring results. A system will be classified vulnerable if any sample was analyzed to contain one or more contaminants listed in 41.5(1)*"b"*(1)-(VOCs) or 41.5(1)*"b"*(3) except for trihalomethanes or other demonstrated disinfection by-products.

2. SOC vulnerability assessment criteria—previous monitoring results. A system will be classified vulnerable if any sample was analyzed to contain one or more contaminants listed in 41.5(1)*"b"*(2)-(SOCs) or 41.5(1)*"b"*(3) except for trihalomethanes or other demonstrated disinfection by-products.

3. Proximity of surface water supplies to commercial or industrial use, disposal or storage of volatile synthetic organic chemicals. Surface waters which withdraw water directly from reservoirs are considered vulnerable if the drainage basin upgradient and within two miles of the shoreline at the maximum water level contains major transportation facilities such as primary highways or railroads or any of the contaminant sources listed in this subparagraph. Surface water supplies which withdraw water directly from flowing water courses are considered vulnerable if the drainage basin upgradient and within

two miles of the water intake structure contains major transportation facilities such as primary highways or railroads or any of the contaminant sources listed in this subparagraph.

4. Proximity of supplies to commercial or industrial use, disposal or storage of volatile synthetic organic chemicals. Wells that are not separated from sources of contamination by at least the following distances will be considered vulnerable.

Sources of Contamination	Shallow Wells as defined in 567—40.2(455B)	Deep Wells as defined in 567—40.2(455B)
Sanitary and industrial point discharges	400 ft	400 ft
Mechanical waste treatment plants	400 ft	200 ft
Lagoons	1,000 ft	400 ft
Chemical and storage (aboveground)	200 ft	l00 ft
Chemical and mineral storage including underground storage tanks on or below ground	400 ft	200 ft
Solid waste disposal site	1,000 ft	1,000 ft

5. A system is deemed to be vulnerable for a period of three years after any positive measurement of one or more contaminants listed in 41.5(1)*"b"*(1) except for trihalomethanes or other demonstrated disinfection by-products.

(8) PCB analytical methodology. Analysis for PCBs shall be conducted using the methods in 41.5(1)*"b"*(1) and as follows:

1. Each system which monitors for PCBs shall analyze each sample using Method 505, 508, 508.1, or 525.2. Users of Method 505 may have more difficulty in achieving the required Aroclor detection limits than users of Method 508, 508.1, or 525.2.

2. If PCBs (as one of seven Aroclors) are detected in any sample analyzed using Method 505 or 508, the system shall reanalyze the sample using Method 508A to quantitate PCBs as decachlorobiphenyl.

PCB AROCLOR DETECTION LIMITS

Aroclor	Detection Limit (mg/L)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

3. Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A.

d. Best available technology(ies) (BATs). Rescinded IAB 8/11/99, effective 9/15/99.

e. Total trihalomethanes sampling, analytical and other requirements. Rescinded IAB 1/7/04, effective 2/11/04.

f. Analytical procedures—organics. Rescinded IAB 1/7/04, effective 2/11/04.

41.5(2) *Organic chemicals occurring as (nontrihalomethane) disinfection by-products.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—41.6(455B) Disinfection byproducts maximum contaminant levels and monitoring requirements.

41.6(1) *Stage 1 disinfection byproducts requirements.*

a. Applicability.

(1) This rule establishes criteria under which CWS and NTNC public water supply systems that add a chemical disinfectant to the water in any part of the drinking water treatment process or which provide water that contains a chemical disinfectant must modify their practices to meet the MCLs listed in this rule and the maximum residual disinfectant levels (MRDL) and treatment technique requirements for disinfection byproduct precursors listed in 567—43.6(455B).

(2) Rescinded IAB 1/7/04, effective 2/11/04.

(3) Compliance dates for this rule are based upon the source water type and the population served. Systems are required to comply with this rule as follows, unless otherwise noted. The department may assign an earlier monitoring period as part of the operation permit, but compliance with the maximum contaminant level is not required until the dates stated below.

1. CWS and NTNC systems which use surface water or groundwater under the direct influence of surface water in whole or in part and which serve 10,000 or more persons must comply with this rule beginning January 1, 2002.

2. All other CWS and NTNC systems covered by 41.6(1)*"a"*(1) must comply with this rule by January 1, 2004.

(4) Consecutive systems. Consecutive systems that provide water containing a disinfectant or oxidant are required to comply with this rule.

(5) Systems with multiple water sources. Systems with water sources that are used independently from each other, are not from the same source as determined by the department, or do not go through identical treatment processes are required to conduct the monitoring for the applicable disinfectants or oxidants and disinfection byproducts during operation of each source. The system must comply with this rule during the use of each water source.

b. Maximum contaminant levels for disinfection byproducts.

(1) The maximum contaminant levels (MCLs) for disinfection byproducts are as follows:

Disinfection byproduct	MCL (mg/L)
Bromate	0.010
Chlorite	1.0
Haloacetic acids (HAA5)	0.060
Total trihalomethanes (TTHM)*	0.080

*The TTHM MCL changed from 0.10 mg/L to 0.080 mg/L effective January 1, 2002, for CWS serving at least 10,000 people and effective January 1, 2004, for all other CWS and NTNC systems which are subject to this rule.

(2) Beginning on the date listed in the following table, a system must comply with the total trihalomethanes MCL and the haloacetic acid MCL as a locational running annual average at each monitoring location.

System Size (number of people served)	Date system must comply with MCL at each sampling location*
Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system	
System serving at least 100,000 people	April 1, 2012
System serving 50,000-99,999 people	October 1, 2012

System Size (number of people served)	Date system must comply with MCL at each sampling location*
System serving 10,000-49,999 people	October 1, 2013
System serving fewer than 10,000 people	• October 1, 2013, for all groundwater systems and for SW/IGW systems that did not collect *Cryptosporidium* source water samples • October 1, 2014, for SW/IGW systems that collected *Cryptosporidium* source water samples
Other systems that are part of a combined distribution system	
Consecutive or wholesale system	At the same time as the system with the earliest compliance date in the combined distribution system

*The department may grant up to an additional 24 months for compliance with the MCLs and operational evaluation levels if the system requires capital improvements to comply with an MCL.

c. Monitoring requirements for disinfection byproducts.

(1) General requirements.

1. Systems must take all samples during normal operating conditions.

2. Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with department approval.

3. Failure to monitor in accordance with the monitoring plan required under 41.6(1)*"c"*(1)"6" is a monitoring violation.

4. Failure to monitor is a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages, and the system's failure to monitor makes it impossible to determine compliance with MCLs.

5. Systems may use only data collected under the provisions of this rule or 567—43.6(455B) to qualify for reduced monitoring.

6. Each system required to monitor under the provisions of this rule or 567—43.6(455B) must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the department and the general public no later than 30 days following the applicable compliance dates in 41.6(1)*"a"*(3). All systems using surface water or groundwater under the direct influence of surface water and serving more than 3,300 people must submit a copy of the monitoring plan to the department by the applicable date in 41.6(1)*"a"*(3)"1." The department may also require the plan to be submitted by any other system. After review, the department may require changes in any plan elements. The plan must include at least the following elements:

- Specific locations and schedules for collecting samples for any parameters included in this rule.
- How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.

7. The department may require a monthly monitoring frequency for disinfection byproducts, which would be specified in the operation permit.

(2) Bromate. Community and nontransient noncommunity systems using ozone for disinfection or oxidation must conduct monitoring for bromate.

1. Routine monitoring. Systems must take at least one sample per month for each treatment plant in the system using ozone, collected at each source/entry point to the distribution system while the ozonation system is operating under normal conditions.

2. Reduced monitoring. A system may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is less than or equal to 0.0025 mg/L based on monthly bromate measurements for the most recent four quarters. If the system previously qualified for reduced bromate monitoring and is on quarterly sampling frequency, it may remain on reduced monitoring as long as the running annual average of the bromate samples is less than or equal to 0.0025 mg/L. If the running annual average of quarterly bromate samples exceeds 0.0025 mg/L, the system must resume routine bromate monitoring. Only three analytical methods may be used for bromate samples under reduced monitoring: EPA Method 317.0 Revision 2.0, Method 326.0, or Method 321.8.

(3) Chlorite. Community and nontransient noncommunity water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite. If the system does not use chlorine dioxide on a daily basis, the system must conduct the required daily monitoring each day chlorine dioxide is used, and any required monthly monitoring during those months in which chlorine dioxide is used during any portion of the month.

1. Routine daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by 41.6(1)*"c"*(3)"3," which are in addition to the sample required at the entrance to the distribution system. These daily entry point to the distribution system samples may be analyzed by system personnel, in accordance with 41.6(1)*"d."*

2. Routine monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted in accordance with 41.6(1)*"c"*(3)"3" to meet the requirement for monitoring in 41.6(1)*"c"*(3)"2." These monthly distribution system samples must be analyzed by a certified laboratory using an approved ion chromatography method, in accordance with 41.6(1)*"d."*

3. Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system). These additional distribution system samples must be analyzed by a certified laboratory using an approved ion chromatography method, in accordance with 41.6(1)*"d."*

4. Reduced monitoring.

- Daily chlorite monitoring at the entrance to the distribution system required by 41.6(1)*"c"*(3)"1" may not be reduced.
- The department may allow systems with monthly chlorite monitoring in the distribution system required by 41.6(1)*"c"*(3)"2" to be reduced to a requirement of 1 three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under 41.6(1)*"c"*(3)"2" has exceeded the chlorite MCL and the system has not been required to conduct additional monitoring under 41.6(1)*"c"*(3)"3." The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under 41.6(1)*"c"*(3)"2" exceeds the chlorite MCL or the system is required to conduct monitoring under 41.6(1)*"c"*(3)"3" of this rule, at which time the system must revert to routine monitoring.

(4) Total trihalomethanes (TTHM) and haloacetic acids (HAA5).

1. Routine monitoring. Systems must monitor at the frequency indicated in the following table. Both the TTHM and HAA5 samples must be collected as paired samples during the same time period in order for each parameter to have the same annual average period for result comparison. A paired sample is one that is collected at the same location and time and is analyzed for both TTHM and HAA5 parameters.

Routine Monitoring Frequency for TTHM and HAA5

Type of System (source water type and population served)	Minimum Monitoring Frequency	Sample Location in the Distribution System
SW/IGW[3] system serving ≥10,000 persons	Four water samples per quarter per treatment plant	At least 25 percent of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods.[1]
SW/IGW[3] system serving 500-9,999 persons	One water sample per quarter per treatment plant	Locations representing maximum residence time.[1]
SW/IGW[3] system serving <500 persons	One sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in 41.6(1)*"c"*(4)"2," second bulleted paragraph.
System using only non-IGW groundwater using chemical disinfectant and serving ≥10,000 persons	One water sample per quarter per treatment plant[2]	Locations representing maximum residence time.[1]
System using only non-IGW groundwater using chemical disinfectant and serving <10,000 persons	One sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in 41.6(1)*"c"*(4)"2," second bulleted paragraph.

[1]If a system chooses to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

[2]Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with department approval.

[3]SW/IGW indicates those systems that use either surface water (SW) or groundwater under the direct influence of surface water (IGW), in whole or in part.

2. Reduced monitoring. The department may allow systems a reduced monitoring frequency, except as otherwise provided, in accordance with the following table. Source water total organic carbon (TOC) levels must be determined in accordance with 567—subparagraph 43.6(2)*"c"*(1).

Reduced Monitoring Frequency for TTHM and HAA5

If you are a ...	And you have monitored at least one year and your ...	You may reduce monitoring to this level
SW/IGW[1] system serving ≥10,000 persons which has a source water annual average TOC level, before any treatment, of ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	One sample per treatment plant per quarter at distribution system location reflecting maximum residence time.
SW/IGW[1] system serving 500 - 9,999 persons that has a source water annual average TOC level, before any treatment, of ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature.
SW/IGW[1] system serving <500 persons	Any SW/IGW[1] system serving <500 persons may not reduce its monitoring to less than one sample per treatment plant per year.	
System using only non-IGW groundwater using chemical disinfectant and serving ≥10,000 persons	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature.
System using only non-IGW groundwater using chemical disinfectant and serving <10,000 persons	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L for two consecutive years; or, TTHM annual average ≤0.020 mg/L and HAA5 annual average ≤0.015 mg/L for one year.	One sample per treatment plant per three-year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring.

[1]SW/IGW indicates those systems that use either surface water (SW) or groundwater under the direct influence of surface water (IGW), in whole or in part.

- Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is less than or equal to 0.060 mg/L for TTHMs and is less than or equal to 0.045 mg/L for HAA5. Systems that do not meet these levels must resume monitoring at the frequency identified in 41.6(1)*"c"*(4)"1" in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for TTHMs and 0.045 mg/L for HAA5. For systems using only groundwater not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system must go to increased monitoring identified in 41.6(1)*"c"*(4)"1" in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L for TTHMs or 0.060 mg/L for HAA5.
- The department may allow systems on increased monitoring to return to routine monitoring if, after one year of monitoring, TTHM annual average is less than or equal to 0.060 mg/L and HAA5 annual average is less than or equal to 0.045 mg/L.
- The department may return a system to routine monitoring at the department's discretion.

d. Analytical requirements for disinfection byproducts.

(1) Systems must use only the analytical method(s) specified in this paragraph, or equivalent methods as determined by EPA, to demonstrate compliance with the requirements of this rule.

(2) Systems must measure disinfection byproducts by the methods (as modified by the footnotes) listed in the following table:

Approved Methods for Disinfection Byproduct Compliance Monitoring

Contaminant and Methodology	EPA Method[1]	Standard Method[2]	ASTM Method[3]
TTHM			
P&T/GC/EICD & PID	502.2[4]		
P&T/GC/MS	524.2		
LLE/GC/ECD	551.1		
HAA5			
LLE (diazomethane)/GC/ECD		6251 B[5]	
SPE (acidic methanol)/GC/ECD	552.1[5]		
LLE (acidic methanol)/GC/ECD	552.2, 552.3		
Bromate			
Ion chromatography	300.1		D 6581-00
Ion chromatography & postcolumn reaction[9]	317.0 Rev. 2.0[6], 326.0[6]		
IC/ICP-MS[9]	321.8[6,7]		
Chlorite			
Amperometric titration		4500-ClO_2 E[8]	
Spectophotometry	327.0 Rev. 1.1[8]		
Ion chromatography	300.0, 300.1, 317.0 Rev. 2, 326.0		

ECD = electron capture detector
EICD = electrolytic conductivity detector
GC = gas chromatography
IC = ion chromatography
LLE = liquid/liquid extraction
MS = mass spectrometer
P&T = purge and trap
PID = photoionization detector
SPE = solid phase extractor

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC 20408.

[1]EPA: The following methods are available from the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

Methods 300.0 and 321.8: Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1, USEPA, August 2000, EPA 815-R-00-014 (available through NTIS, PB2000-106981).

Method 300.1: "Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0," EPA-600/R-98/118, 1997 (available through NTIS, PB98-169196).

Method 317.0: "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis, Revision 2.0," USEPA, July 2001, EPA 815-B-01-001.

Method 326.0: "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis, Revision 1.0," USEPA, June 2002, EPA 815-R-03-007.

Method 327.0: "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry, Revision 1.1," USEPA, May 2005, EPA 815-R-05-008.

Methods 502.2, 524.2, 551.1, and 552.2: Methods for the Determination of Organic Compounds in Drinking Water—Supplement III, EPA-600/R-95-131, August 1995 (NTIS PB95-261616).

Method 552.1: Methods for the Determination of Organic Compounds in Drinking Water—Supplement II, EPA-600/R-92-129, August 1992 (NTIS PB92-207703).

Method 552.3: "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection, Revision 1.0," USEPA, July 2003, EPA-815-B-03-002.

[2]4500-ClO2 E: Standard Methods for the Examination of Water and Wastewater, 19th and 20th editions, American Public Health Association, 1995 and 1998, respectively, which is available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[3]Method D 6581-00: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohoken, PA 19428: Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2001 (or any year containing the cited version).

[4]If TTHMs are the only analytes being measured in the sample, then a PID is not required.

[5]The samples must be extracted within 14 days of sample collection.

[6]Ion chromatography and postcolumn reaction or IC/ICP-MS must be used for bromate analysis for purposes of demonstrating eligibility of reduced monitoring.

[7]Samples must be preserved at sample collection with 50 mg ethylenediamine (EDA)/L of sample and must be analyzed within 28 days.

[8]Amperometric titration or spectrophotometry may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in 41.6(1)*"c"*(3)"1." Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in 41.6(1)*"c"*(3)"2" and "3."

[9]These are the only methods approved for reduced bromate monitoring under 41.6(1)*"c"*(2)"2."

(3) Certified laboratory requirements. Analyses under this rule for disinfection byproducts shall only be conducted by laboratories that have been certified by the department and are in compliance with the requirements of 567—Chapter 83, except as specified under 41.6(1)*"d"*(4). The performance evaluation sample acceptance limits and minimum reporting levels are listed in 567—subparagraph 83.6(7)*"a"*(6).

(4) Daily chlorite samples at the entrance to the distribution system must be measured by a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83.

e. Compliance requirements for disinfection byproducts.

(1) General requirements.

1. When compliance is based on a running annual average of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2. Unless invalidated by the department, all samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

3. If, during the first year of monitoring under paragraph 41.6(1)*"c,"* any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

(2) Bromate. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by 41.6(1)*"c"*(2). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."* If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(3) Chlorite. Compliance must be based on an arithmetic average of each three-sample set taken in the distribution system as prescribed by 41.6(1)*"c"*(3)"1" and 41.6(1)*"c"*(3)"2." If the arithmetic average of any three-sample set exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

(4) TTHM and HAA5.

1. For systems monitoring quarterly, compliance with MCLs in 41.6(1)*"b"* must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by 41.6(1)*"c"*(4).

2. For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under the provisions of 41.6(1)*"c"*(4) does not exceed the MCLs in 41.6(1)*"b."* If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant and is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase to quarterly monitoring must calculate compliance by including the sample that triggered the increased monitoring plus the following three quarters of monitoring.

3. If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 567—42.1(455B) in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

4. If a PWS fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

f. Reporting requirements for disinfection byproducts. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for disinfection byproducts are listed in 567—subparagraph 42.4(3)*"d"*(2).

41.6(2) *Stage 2 initial distribution system evaluation.* The department is adopting by reference the requirements for the Stage 2 initial distribution system evaluation (IDSE) listed in 40 CFR 141.600-605 as adopted on January 4, 2006. This regulation establishes monitoring and other requirements for identifying compliance monitoring locations that will be used to determine compliance with maximum contaminant levels for total trihalomethanes and haloacetic acids. All CWS required to comply with 41.6(1) and all NTNC serving at least 10,000 people that are required to comply with 41.6(1) are required to comply with this subrule. The requirements in this subrule constitute national primary drinking water regulations. Only the analytical methods specified in 41.6(1)*"d"* may be used to demonstrate compliance with this subrule.

41.6(3) *Stage 2 disinfection byproducts requirements.* The requirements of this subrule constitute national primary drinking water regulations. This subrule establishes monitoring and other requirements for achieving compliance with MCLs based on locational running annual averages (LRAA) for TTHM and HAA5.

a. Applicability. All CWS and NTNC systems that use a primary or residual disinfectant other than ultraviolet light or deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light must comply with the requirements in this subrule.

(1) Schedule. Systems must comply with the dates listed in the appropriate schedule. For the purposes of this subrule, the combined distribution system (CDS) as defined in 567—40.2(455B) only includes active connections; emergency connections are excluded. Any CWS or NTNC that purchases or sells water on a routine basis through an active connection to another CWS or NTNC is part of a combined distribution system. All systems included in a CDS must adhere to the schedule of the system that serves the largest population in that CDS. The system must comply with the requirements on the schedule for systems that are not a part of a CDS and for systems that serve the largest population in the CDS. The schedule for the other systems that are a part of a CDS, either wholesale or consecutive, is the same schedule as that of the system with the earliest compliance date in the CDS.

Schedule	System Population	Date by which system must begin Stage 2 compliance monitoring
1	At least 100,000	April 1, 2012
2	50,000-99,999	October 1, 2012
3	10,000-49,999	October 1, 2013
4	Fewer than 10,000	• October 1, 2013, for all GW systems and any SW/IGW systems that did not conduct *Cryptosporidium* sampling under 567—paragraph 43.11(3)*"b"*(2)"4" • October 1, 2014, for SW/IGW systems that conducted *Cryptosporidium* sampling under 567—paragraph 43.11(3)*"b"*(2)"4"

(2) Initiation of compliance monitoring under Stage 2. Systems shall switch from Stage 1 compliance monitoring (41.6(1)) to Stage 2 monitoring as follows:

1. Systems required to conduct quarterly monitoring must start monitoring in the first full calendar quarter that includes the compliance date in the preceding table.

2. Systems that conducted IDSE monitoring and have an approved report and that are required to conduct monitoring at a frequency less than quarterly must start monitoring in the calendar month recommended in the approved IDSE report.

3. Systems that were not required to prepare an IDSE report under 41.6(2) must update their Stage 1 monitoring plan to meet the Stage 2 requirements and submit it to the department for approval six months prior to the compliance date in the preceding table.

(3) Timing of initial determination of compliance under Stage 2.

1. Systems required to conduct quarterly monitoring must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the results of subsequent sampling. Compliance determination must continue at the end of each subsequent quarter.

2. Systems required to conduct monitoring at a frequency that is less than quarterly must make compliance calculations beginning with the first compliance sample taken after the compliance date.

(4) Monitoring and compliance.

1. Systems required to monitor quarterly must calculate LRAAs for TTHM and HAA5 using the monitoring results collected under this subrule and determine that each LRAA does not exceed the MCL. If the system does not complete the four consecutive quarters of monitoring, the system must calculate the compliance with the MCL based on the average of the available data from the most recent four quarters. If the system collects more than one sample per quarter at a monitoring location, all samples taken in the quarter at that location must be averaged to determine a quarterly average to be used for the LRAA calculation. If a system fails to monitor, it is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA.

2. Systems required to monitor yearly or triennially must determine that each sample collected is less than the MCL. If any sample exceeds the MCL, the system must comply with the requirements of 41.6(3)*"e."* If no sample exceeds the MCL, the sample result for each monitoring location is considered to be the LRAA for that monitoring location. If a system fails to monitor, it is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA.

3. The department may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if the system is required to make capital improvements in order to comply with an MCL.

(5) Any CWS or NTNC system that begins using water to which a disinfectant has been added, other than ultraviolet light, after the initial compliance dates for IDSE or Stage 2 compliance monitoring must comply with this subrule.

b. Monitoring plan. All systems must develop and implement a disinfection byproduct monitoring plan, which shall be kept on file at the system for review by the department and the

public. The monitoring plan must contain the monitoring locations, monitoring dates, and compliance calculation procedures.

(1) If the system has an approved IDSE-standard monitoring plan (IDSE-SMP) report, that report contains all of the plan elements and meets this requirement.

(2) If the system does not have an approved IDSE-SMP report and does not have sufficient monitoring locations from its initial disinfection byproduct sampling plan, the system must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. The system must provide the rationale for identifying locations as having high levels of TTHM or HAA5.

(3) If the system does not have an approved IDSE-SMP report and has more monitoring locations from its initial Stage 1 disinfection byproduct sampling plan than the number of locations required under the Stage 2 compliance monitoring, the system must identify which locations it will use for compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified.

(4) All plans must be reviewed by the system every three years and updated as system conditions change (such as changes in water quality or hydraulics, etc.).

1. A system may revise its monitoring plan to reflect changes in treatment, distribution system operations, and layout (including new service areas), to reflect other factors that may affect TTHM or HAA5 formation, or for department-approved reasons.

2. The system must consult with the department regarding the need for changes and the appropriateness of changes. The system must replace existing compliance monitoring locations that have the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels.

3. The department may require modifications in the system's monitoring plan.

(5) Systems are also required to maintain the disinfectant and MRDL elements of the Stage 1 monitoring plan pursuant to 41.6(1)*"c"*(1)"6" and 567—paragraph 43.6(1)*"c"*(1)"5."

(6) All systems are required to have a valid disinfection byproducts monitoring plan prior to the start of compliance monitoring in 41.6(3)*"a"*(1).

c. Routine monitoring. Systems are required to start monitoring at the locations specified in the approved disinfection byproducts monitoring plan and on the schedule specified in 41.6(3)*"a"*(1). Each system must monitor the disinfection byproducts at the minimum number of locations identified in the Routine Monitoring table.

Routine Monitoring

Source water type	Population size category	Monitoring frequency	Total number of distribution system monitoring location sites per monitoring period
SW/IGW	<500	per year	2
	500-3,300	per quarter	2
	3,301-9,999	per quarter	2
	10,000-49,999	per quarter	4
	50,000-249,999	per quarter	8
Groundwater	<500	per year	2
	500-9,999	per year	2
	10,000-99,999	per quarter	4
	100,000-499,999	per quarter	6

(1) All systems must monitor during the month of highest disinfection byproduct concentrations.

(2) Systems on a quarterly monitoring frequency must collect samples for TTHM and HAA5 every 90 days at each monitoring location, except that SW/IGW systems serving 500 to 3,300 people may

collect at one location as provided in 41.6(3)*"c"*(3). Each sample collected at each location must be analyzed for both TTHM and HAA5 components.

(3) Systems on an annual monitoring frequency and SW/IGW systems serving 500 to 3,300 people are required to collect TTHM and HAA5 samples at the locations with the highest TTHM and HAA5 concentrations, respectively. Each sample must be analyzed for both TTHM and HAA5 components. Sample collection is required from only one location if the highest TTHM concentration and the highest HAA5 concentration occur at the same location.

(4) Analytical methods. Systems must use an approved method listed in 41.6(1)*"d"*(2) for TTHM and HAA5 analyses pursuant to this subrule. Analyses must be conducted by laboratories certified for disinfection byproducts analyses in accordance with 567—Chapter 83.

d. Reduced monitoring. A system may reduce monitoring to the level specified in the Reduced Monitoring table anytime the locational running annual average is less than or equal to half the MCL for TTHM and HAA5 at all monitoring locations (i.e., less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5). Only data collected under the provisions of this rule may be used to qualify for reduced monitoring.

Reduced Monitoring

Source water type	Population size category	Monitoring frequency[1]	Distribution system monitoring location sites per monitoring period[2]
SW/IGW	<500	per year	Monitoring may not be reduced
	500-3,300	per year	1 sample per year at the same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	3,301-9,999	per year	2 samples: one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement
	10,000-49,999	per quarter	2 samples: one at the highest TTHM LRAA location and one at the highest HAA5 LRAA location
	50,000-249,999	per quarter	4 samples: one sample each at the highest two TTHM LRAA locations and one sample each at the highest two HAA5 LRAA locations
Groundwater	<500	every third year	1 sample per year at the same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	500-9,999	per year	1 sample per year at the same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	10,000-99,999	per year	2 samples: one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement
	100,000-499,999	per quarter	2 samples: one at the highest TTHM LRAA location and one at the highest HAA5 LRAA location

[1]Systems on a quarterly monitoring frequency must collect the sample(s) every 90 days.

[2]Each sample must be analyzed for all TTHM and HAA5 components.

(1) Additional source water TOC requirement for SW/IGW systems. For SW/IGW systems, the source water running annual average TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating surface water or influenced groundwater, based on the monitoring conducted under 567—paragraph 43.6(2)*"b,"* in order to qualify for reduced monitoring.

(2) Continued reduced monitoring frequency. Systems may remain on a reduced monitoring frequency as long as they meet the following criteria. For SW/IGW systems, the source water annual average TOC level requirement in 41.6(3)*"d"*(1) must continue to be met.

1. A system with a quarterly reduced monitoring frequency may remain on reduced monitoring as long as the TTHM LRAA is less than or equal to 0.040 mg/L and the HAA5 LRAA is less than or equal to 0.030 mg/L at each monitoring location.

2. A system with an annual or triennial monitoring frequency may remain on reduced monitoring as long as each TTHM sample is less than or equal to 0.060 mg/L and each HAA5 sample is less than or equal to 0.045 mg/L.

(3) Return to routine monitoring frequency. Systems that cannot meet the requirements for reduced monitoring must resume routine monitoring according to 41.6(3)*"c"* or begin increased monitoring according to 41.6(3)*"e."*

1. A system with a quarterly reduced monitoring frequency must resume routine monitoring if the LRAA from any location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5.

2. A system with an annual or triennial monitoring frequency must resume routine monitoring if the annual sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5.

3. Any SW/IGW system must resume routine monitoring if the running annual average source water TOC level, prior to any treatment, is more than 4.0 mg/L.

4. In addition, the department may require any system to resume routine monitoring at the department's discretion.

(4) Remaining on reduced monitoring from Stage 1 to Stage 2 transition. A system may remain on reduced monitoring after the dates listed in 41.6(3)*"a"*(1) if all of the following three criteria are met. If the three criteria are not met, the system must return to routine monitoring.

1. Under the IDSE, the system qualified for a 40/30 certification or received a very small system waiver;

2. The system meets the reduced monitoring criteria of this paragraph; and

3. The system has not changed or added locations for disinfection byproduct monitoring from those used under the Stage 1 requirements in 41.6(1).

e. Increased monitoring.

(1) Systems that are monitoring annually or triennially must increase their monitoring frequency to quarterly if the following conditions are met.

1. Single result exceeds the TTHM or HAA5 MCL. A system that is monitoring annually or triennially must increase monitoring to quarterly at all locations if a single TTHM sample is greater than 0.080 mg/L or a single HAA5 sample is greater than 0.060 mg/L. The quarterly samples must be analyzed for both TTHM and HAA5 components.

2. Systems with a TTHM or HAA5 MCL violation. A system that is monitoring annually or triennially that is in violation of the MCL for TTHM or HAA5, based upon the LRAA, must increase monitoring to quarterly at all locations. The quarterly samples must be analyzed for both TTHM and HAA5 components. The LRAA is calculated based on four consecutive quarters of monitoring or based on fewer quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters.

(2) Systems on a quarterly monitoring frequency during Stage 1 to Stage 2 transition. A system that was on increased monitoring under Stage 1 must remain on increased monitoring until the system qualifies for a return to routine monitoring under 41.6(3)*"e"*(3). The system must conduct the increased monitoring at the monitoring locations in the monitoring plan developed under 41.6(3)*"b,"* beginning on the date identified in 41.6(3)*"a"*(1).

(3) Return to routine monitoring frequency. A system may return to routine monitoring once the system has conducted increased monitoring for at least four consecutive quarters and the LRAA for every

monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5. The system may not have any monitoring violations during the most recent four consecutive quarters.

f. Operational evaluation level (OEL).

(1) TTHM operational evaluation level. The TTHM operational evaluation level is determined by the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine an average. If that average exceeds 0.080 mg/L, the system has exceeded the TTHM operational evaluation level.

(2) HAA5 operational evaluation level. The HAA5 operational evaluation level is determined by the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine an average. If that average exceeds 0.060 mg/L, the system has exceeded the HAA5 operational evaluation level.

(3) A system must calculate the operational evaluation level at any monitoring location that has a single analytical result in excess of the TTHM or HAA5 MCL in the analytical data used to calculate the current 12-month LRAA. A system must determine compliance with the OEL every quarter.

(4) Requirements when the operational evaluation level is exceeded. The system must conduct an operational evaluation and submit a written report of the evaluation to the department within 90 days after the system is notified of the analytical result that caused the system to exceed the operational evaluation level. The written report must be made available to the public upon request. The report must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in source water or source water quality, and treatment changes or problems that may contribute to disinfection byproduct formation, and what steps could be considered to minimize future exceedances.

1. The system may make a request to the department to limit the scope of the examination if the system is able to identify the cause of the operational evaluation level exceedance. The 90-day deadline for submitting the written report cannot be extended.

2. The system must have department approval to limit the scope of the examination. The approval must be in writing and kept with the completed report.

g. Reporting. All systems required to comply with this rule must meet the reporting requirements pursuant to 567—paragraph 42.4(3)*"d."*

h. Record keeping. All systems required to comply with this rule must retain the monitoring plans and analytical results as required by 567—paragraph 42.5(1)*"h."*

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—41.7(455B) Physical properties maximum contaminant levels (MCL or treatment technique requirements) and monitoring requirements. Rescinded IAB 10/18/00, effective 11/22/00.

567—41.8(455B) Radionuclides.

41.8(1) *Radionuclides.*

a. Applicability.

(1) This rule applies to all community public water supplies, and specifies the radionuclide maximum contaminant levels, analytical methodology requirements, and monitoring requirements. The radionuclide reporting requirements are listed in 567—subrule 42.4(1), the public notice requirements are listed in rule 567—42.1(455B), and the best available technology is listed in 567—subparagraph 43.3(10)*"b"*(3). All CWSs must comply with the requirements and maximum contaminant levels for gross alpha particle activity, radium-226, radium-228, uranium, beta particle activity, and photon emitter radioactivity. Only those CWSs designated by the department to be vulnerable to man-made radioactivity contamination are required to monitor for beta particle activity and photon emitter radioactivity. To determine whether a system is vulnerable to man-made nuclear radioactivity, the department will evaluate proximity to a nuclear facility, source water, historical analytical data, ongoing surveillance data from the nuclear facility, and any other factor considered by the department to be relevant to the vulnerability determination.

(2) Compliance dates. Community water systems must comply with the MCLs listed in 41.8(1)*"b"*(1) beginning December 8, 2003. Compliance shall be determined in accordance with 41.8(1)*"c"* through 41.8(1)*"f."* Compliance with the radionuclides reporting requirements is required by December 8, 2003. All CWSs must conduct initial monitoring to determine compliance with 41.8(1)*"b"*(1) by December 31, 2007.

b. Maximum contaminant levels for radionuclides.

(1) Gross alpha particle activity, radium-226, radium-228, and uranium MCLs. The following table specifies the MCLs for gross alpha particles, radium, and uranium radionuclides:

Contaminant	Maximum Contaminant Level
Gross alpha particle activity, including Radium-226 but excluding radon and uranium	15 pCi/L
Combined Radium-226 and Radium-228	5 pCi/L[1]
Uranium	30 μg/L

[1]The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

(2) Beta particle activity and photon radioactivity MCLs.

1. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

2. Except for the radionuclides listed below, the concentration of man-made radionuclides causing 4 millirems total body or organ dose equivalents must be calculated on the basis of 2 liter per day drinking water intake, using the 168-hour data lists in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," National Bureau of Standards Handbook 69 as amended August 1963, United States Department of Commerce. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirems/year.

Average Annual Concentrations Assumed to Produce a
Total Body or Organ Dose of 4 mrem/year

Radionuclide	Critical Organ	Concentration
Strontium-90	Bone marrow	8 pCi/L
Tritium	Total body	20,000 pCi/L

c. Compliance determinations. Compliance with 41.8(1)*"b"* will be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL. If the system is in violation of an MCL, the supplier of the water is required to give notice to the department in accordance with 567—subrule 42.4(1) and to notify the public as required by 567—42.1(455B).

(1) Detection limits. For the purposes of monitoring gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, "detection limit" is defined in this subparagraph.

1. For the purpose of monitoring radioactivity concentration in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus 100 percent at the confidence level (1.960 sigma where sigma is the standard deviation of the net counting rate of the sample).

2. To determine compliance with 41.8(1)*"b"*(1), the detection limit shall not exceed the following concentrations:

Detection Limits for Gross Alpha Particle Activity,
Radium-226, Radium-228, and Uranium

Contaminant	Detection Limit
Gross alpha particle activity	3 pCi/L
Radium-226	1 pCi/L
Radium-228	1 pCi/L
Uranium	1 μg/L

3. To determine compliance with 41.8(1)*"b"*(2), the detection limits shall not exceed the following concentrations:

Detection Limits for Man-Made
Beta Particle and Photon Emitters

Contaminant	Detection Limit
Gross beta	4 pCi/L
Cesium-134	10 pCi/L
Iodine-131	1 pCi/L
Strontium-89	10 pCi/L
Strontium-90	2 pCi/L
Tritium	1,000 pCi/L
Other radionuclides	1/10 of the applicable limit

(2) Compliance determination.

1. For systems monitoring more than once per year (i.e., quarterly), compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, the system is immediately in violation of the MCL. If any sample result causes the running annual average to exceed the MCL at any sample point, the system is immediately in violation of the MCL.

2. Systems monitoring annually or less frequently (i.e., one-, three-, six-, or nine-year frequency), and whose sample result exceeds the MCL, must revert to quarterly sampling for that contaminant during the next quarter. Systems are required to conduct quarterly monitoring only at the source/entry point at which the sample was collected and for the specific contaminant that triggered the system into the increased monitoring frequency. Systems triggered into increased monitoring will not be considered in violation of the MCL until they have completed one year of quarterly sampling. If any sample result causes the running annual average to exceed the MCL at any sample point, the system is immediately in violation of the MCL.

3. Systems must include all samples taken and analyzed under the provisions of this rule in determining compliance, even if that number is greater than the minimum required by the department.

4. If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

5. If a sample result is less than the detection limit, a value of zero will be used to calculate the annual average.

6. The department may invalidate results of obvious sampling or analytical errors.

7. Averaging and significant figures. To judge compliance with the maximum contaminant levels listed in 41.8(1)*"b,"* averages of data shall be used and shall be rounded to the same number of significant figures as the maximum contaminant level for the substance in question.

(3) The department will determine compliance or initiate enforcement action based upon analytical results or other information compiled by department staff or the department's designee.

(4) The department may assign additional requirements as it deems necessary to protect the public health, including public notification requirements.

d. Analytical methodology for radionuclides. Analysis for the following contaminants shall be conducted to determine compliance with 41.8(1)*"b"* in accordance with the methods in the following table, or equivalent methods determined in accordance with 567—41.12(455B).

(1) Radionuclide Analytical Methodology Table.

RADIONUCLIDE ANALYTICAL METHODOLOGY

Contaminant	Methodology	Reference (method or page number)								
		EPA[1]	EPA[2]	EPA[3]	EPA[4]	SM[5]	ASTM[6]	USGS[7]	DOE[8]	Other
Naturally occurring:										
Gross alpha[11] & beta	Evaporation	900.0	p. 1	00-01	p. 1	302, 7110B		R-1120-76		
Gross alpha[11]	Co-precipitation			00-02		7110C				
Radium-226	Radon emanation	903.1	p. 16	Ra-04	p. 19	305, 7500-Ra C	D 3454-97	R-1141-76	Ra-04	NY[9]
	Radiochemical	903.0	p. 13	Ra-03		304, 7500-Ra B	D 2460-97	R-1140-76		
Radium-228	Radiochemical	904.0	p. 24	Ra-05	p. 19	7500-Ra D		R-1142-76		NY[9] NJ[10]
Uranium[12]	Radiochemical	908.0				7500-U B				
	Fluorometric	908.1				7500-U C	D 2907-97	R-1180-76 R-1181-76	U-04	
	Alpha spectrometry			00-07	p. 33	7500-U C	D 3972-97	R-1182-76	U-02	
	Laser phosphorimetry						D 5174-97			
Man-made:										
Radioactive Cesium	Radiochemical	901.0	p. 4			7500-Cs B	D 2459-72	R-1111-76		
	Gamma ray spectrometry	901.1			p. 92	7120	D 3649-91	R-1110-76	4.5.2.3	
Radioactive Iodine	Radiochemical	902.0	p. 6 p. 9			7500-I B 7500-I C 7500-I D	D 3649-91			
	Gamma ray spectrometry	901.1			p. 92	7120	D 4785-93		4.5.2.3	
Radioactive Strontium 89, 90	Radiochemical	905.0	p. 29	Sr-04	p. 65	303, 7500-Sr B		R-1160-76	Sr-01 Sr-02	
Tritium	Liquid scintillation	906.0	p. 34	H-02	p. 87	306, 7500-3H B	D 4107-91	R-1171-76		
Gamma emitters	Gamma ray spectrometry	901.1 902.0 901.0			p. 92	7120 7500-Cs B 7500-I B	D 3649-91 D 4785-93	R-1110-76	Ga-01-R	

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of documents 1 through 10 was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue NW, Room B135, Washington, DC 20460 (telephone (202)566-2426); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC.

[1]"Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA 600/4-80-032, August 1980. Available at the US Department of Commerce, NTIS, 5285 Port Royal Road, Springfield, VA 22161 (telephone (800)553-6847) PB 80-224744.

[2]"Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75-008(revised), March 1976. Available at NTIS, ibid. PB 253258.

[3]"Radiochemistry Procedures Manual," EPA 520/5-84-006, December 1987. Available at NTIS, ibid. PB 84-215581.

[4]"Radiochemical Analytical Procedures for Analysis of Environmental Samples," March 1979. Available at NTIS, ibid. EMSL LV 053917.

[5]Standard Methods for the Examination of Water and Wastewater, 13th, 17th, 18th, 19th or 20th editions, 1971, 1989, 1992, 1995, 1998. Available at American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005. Methods 302, 303, 304, 305, and 306 are only in the 13th edition. Methods 7110B, 7500-Ra B, 7500-Ra C, 7500-Ra D, 7500-U B, 7500-Cs B, 7500-I B, 7500-I C, 7500-I D, 7500-Sr B, 7500-3H B are in the 17th, 18th, 19th, and 20th editions. Method 7110C is in the 18th, 19th, and 20th editions. Method 7500-U C Fluorimetric Uranium is only in the 17th edition. Method 7500-U C Alpha spectrometry is only in the 18th, 19th, and 20th editions. Method 7120 is only in the 19th and 20th editions.

[6]Annual Book of ASTM Standards, Vol. 11.02, 1999. Any year containing the cited version of the method may be used. Available at ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[7]"Methods for Determination of Radioactive Substances in Water and Fluvial Sediments," Chapter A5 in Book 5 of Techniques of Water-Resources Investigations of the United States Geological Survey, 1977. Available at US Geological Survey (USGS) Information Services, Box 25286, Federal Center, Denver, CO 80225-0425.

[8]"EML Procedures Manual," 28th (1997) or 27th (1990) editions, Volumes 1 and 2; either edition may be used. In the 27th edition, Method Ra-04 is listed as Ra-05, and Method Ga-01-R is listed as Sect. 4.5.2.3. Available at the Environmental Measurements Laboratory, US Department of Energy (DOE), 376 Hudson Street, New York, NY 10014-3621.

[9]"Determination of Ra-226 and Ra-228 (Ra-02)," January 1980, revised June 1982. Available at Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, NY 12201.

[10]"Determination of Radium-228 in Drinking Water," August 1980. Available at State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, NJ 08625.

[11]Natural uranium and thorium-230 are approved as gross alpha calibration standards for gross alpha with co-precipitation and evaporation methods; americium-241 is approved with co-precipitation methods.

[12]If uranium (U) is determined by mass, a 0.67 pCi/μg of uranium conversion factor must be used. This conversion factor is based on the 1:1 activity ratio of U-234 to U-238 that is characteristic of naturally occurring uranium.

(2) Method references for other radionuclides. When the identification and measurement of radionuclides other than those listed in 41.8(1)*"b"* are required, the following references are to be used, except in cases where alternative methods have been approved in accordance with 567—41.12(455B).

1. "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," H. L. Krieger and S. Gold, EPA-R4-73-014, Environmental Protection Agency, Cincinnati, Ohio 45268 (May 1973).

2. "HASL Procedure Manual," edited by John H. Harley. HASL 300, ERDA Health and Safety Laboratory, New York, NY (1973).

e. Monitoring requirements for gross alpha, radium-226, radium-228, and uranium.

(1) General requirements.

1. Monitoring frequency and confirmation samples. The department may require more frequent monitoring than specified in this paragraph. The department may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Monitoring period. Each PWS shall monitor during the time period designated by the department in the operation permit.

(2) Applicability and sampling locations.

1. Existing systems and sources. All existing CWSs must sample at every entry point to the distribution system that is representative of all sources being used under normal operating conditions. The system must take each sample at the same source/entry sampling point, unless conditions make another alternate sampling point more representative of each source, or the department has designated a distribution system location, in accordance with 41.8(1)*"e"*(3)"4." The department must approve any alternate sampling point for radionuclides.

2. New systems and sources. All new CWSs or CWSs that use a new source of water must begin to conduct initial monitoring for the new system or source within the first calendar quarter after initiating use of the system or source. More frequent monitoring must be conducted by the CWS when required by the department, in the event of possible contamination or when changes in the distribution system or treatment processes occur which may increase the concentration of radioactivity in finished water.

(3) Initial monitoring. Systems must conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows. If the average of the initial monitoring results for a source/entry point is above the MCL, the system must collect and analyze quarterly samples at that source/entry point until the system has results from four consecutive quarters that are at or below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.

1. Systems without historical monitoring data. Systems without historical monitoring data must collect four consecutive quarterly samples at all source/entry sampling points before December 31, 2007. The department may waive the final two quarters of initial monitoring from a source/entry point if the results of the samples from the previous two quarters are below the detection limit.

2. Systems with historical monitoring data and one source/entry point. Systems with only one source/entry point may use historical monitoring data collected between January 1, 2000, and December 31, 2003, from either the representative point in the distribution system or the source/entry point to satisfy the initial monitoring requirement.

3. Systems with historical source/entry point monitoring data and multiple source/entry points. Systems with multiple source/entry points that also have appropriate historical monitoring data for each source/entry point may use the monitoring data collected between January 1, 2000, and December 31, 2003, to satisfy the initial monitoring requirement.

4. Systems with historical distribution system monitoring data and multiple source/entry points. Systems with appropriate historical data for a representative point in the distribution system and multiple source/entry points may use the monitoring data collected between January 1, 2000, and December 31, 2003, provided that the department determines that the historical data satisfactorily demonstrates that each source/entry point is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between source/entry points. The department must make a written finding indicating how the data conforms to these requirements, in order for the data to satisfy the initial monitoring requirements.

(4) Reduced monitoring. The department may allow a CWS to reduce the future frequency of monitoring from once every three years to once every six or nine years at each source/entry point, based on the following criteria. The samples collected during the reduced monitoring period must be used to determine the monitoring frequency for subsequent monitoring periods (e.g., if a system's source/entry point is on a nine-year frequency, and the sample result is above half of the MCL, then the next monitoring frequency for that source/entry point is three years). If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that source/entry point until the system has results from four consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.

1. Nine-year frequency. If the average of the initial monitoring results for each contaminant is below the detection limit specified in 41.8(1)*"c"*(1)"2," the system must collect and analyze for that contaminant using at least one sample at that source/entry point every nine years.

2. Six-year frequency. If the average of the initial monitoring results for gross alpha particle activity, uranium, and combined radium-226 and radium-228 is at or above the detection limit and at

or below half the MCL for that contaminant, the system must collect and analyze for that contaminant using at least one sample at that source/entry point every six years. The analytical results for radium-226 and radium-228 must be added together to yield the combined result.

3. Three-year frequency. If the average of the initial monitoring results for gross alpha particle activity, uranium, and combined radium-226 and radium-228 is above half of the MCL and at or below the MCL for that contaminant, the system must collect and analyze for that contaminant using at least one sample at that source/entry point every three years. The analytical results for radium-226 and radium-228 must be added together to yield the combined result.

(5) Composite samples. To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a system may composite up to four consecutive quarterly samples from a single entry point if analysis is done within one year of the first sample. The analytical results from the composited samples will be considered by the department as the average analytical result to determine compliance with the MCLs and to determine the future monitoring frequency. If the analytical result from the composited sample is greater than half of the MCL, the department may require additional quarterly samples from the system before the system will be allowed to sample under a reduced monitoring schedule.

(6) Data substitution using gross alpha particle activity results.

1. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/L.

2. The gross alpha particle activity measurement shall have a confidence interval of 95 percent (1.65 sigma, where sigma is the standard deviation of the net counting rate of the sample) for uranium. When a system uses a gross alpha particle activity measurement in lieu of a uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for uranium. If the gross alpha particle activity result is less than the detection limit, half the detection limit will be used to determine compliance and the future monitoring frequency.

f. Monitoring requirements for beta particle and photon emitters. To determine compliance with the maximum contaminant levels in 41.8(1)*"b"*(2) for beta particle and photon radioactivity, a system must monitor at a frequency specified in 41.8(1)*"f."*

(1) General requirements.

1. Monitoring frequency and confirmation samples. The department may require more frequent monitoring than specified in 41.8(1)*"f."* The department may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Monitoring period. Each PWS shall monitor during the time period designated by the department in the operation permit.

(2) Systems designated by the department as vulnerable to man-made radioactivity.

1. Initial monitoring. Systems that have been determined by the department to be vulnerable to man-made radioactivity must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system, beginning within one quarter after being notified by the department of this requirement. Systems already required to conduct beta particle and photon radioactivity monitoring must continue to sample until the department removes the monitoring requirement.

2. Reduced monitoring. The department may reduce the frequency of monitoring at that sampling point to once every three years, if the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a source/entry point has a running annual average (computed quarterly) of less than or equal to 50 pCi/L (screening level). Systems must collect all of the samples required in 41.8(1)*"f"*(2)"1" during the reduced monitoring period.

3. Data substitution. For a system in the vicinity of a nuclear facility, the department may allow the system to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's source/entry point(s), where the department determines such data is applicable to a particular water system. In the event that there is a release from a nuclear facility,

systems which are using surveillance data must begin monitoring at the system's source/entry point(s) in accordance with 41.8(1)*"f"*(2).

(3) Systems determined to utilize waters contaminated by effluents from nuclear facilities.

1. Initial monitoring. Systems designated by the department as utilizing water contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system, beginning within one quarter after being notified by the department. Systems already designated by the department as systems using waters contaminated by effluents from nuclear facilities must continue to sample until the department removes the sampling requirement.

- Gross beta particle activity. Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended.
- Iodine-131. A composite of five consecutive daily samples shall be analyzed once each quarter for iodine-131. The department may require more frequent monitoring when iodine-131 is identified in the finished water.
- Strontium-90 and tritium. Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. The latter procedure is recommended.

2. Reduced monitoring. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/L (screening level), the department may reduce the frequency of monitoring at that sampling point to every three years. Systems must collect all samples required in 41.8(1)*"f"*(3) during the reduced monitoring period.

3. Data substitution. For systems in the vicinity of a nuclear facility, the department may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the department determines such data is applicable to a particular water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the CWS source/entry point in accordance with 41.8(1)*"f"*(2)"1."

(4) Monitoring frequency waiver. A CWS designated by the department to monitor for beta particle and photon radioactivity cannot apply to the department for a waiver from the monitoring frequencies specified in 41.8(1)*"f"*(2) or (3).

(5) Community water systems may analyze for naturally occurring potassium-40 beta particle activity from the same or an equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

(6) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the appropriate screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample, and the appropriate doses must be calculated and summed to determine compliance with 41.8(1)*"b"*(2)"1," using the formula in 41.8(1)*"b"*(2)"2." Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

(7) Monitoring after an MCL violation. Systems must monitor monthly at the sampling point(s) which exceed the maximum contaminant level in 41.8(1)*"b"*(2) beginning the month after the exceedance occurs. Systems must continue monthly monitoring until the system has established, by a rolling average of three monthly samples, that the MCL is being met. Systems that establish that the MCL is being met must return to quarterly monitoring until they meet the requirements set forth in 41.8(1)*"f"*(2) or 41.8(1)*"f"*(3)"2."

41.8(2) Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—41.9(455B) Sampling and analytical requirements for radionuclides. Rescinded IAB 1/7/04, effective 2/11/04.

567—41.10(455B) Reporting, public notification and record keeping. Rescinded IAB 8/11/99, effective 9/15/99.

567—41.11(455B) Special monitoring.

41.11(1) *Special monitoring for sodium.* Suppliers of water for community public water systems shall collect and have analyzed one sample per source or plant, for the purpose of determining the sodium concentration in the distribution system. Systems utilizing multiple wells that draw raw water from a single aquifer may, with departmental approval, be considered as one source for determining the minimum number of samples to be collected. Sampling frequency and approved analytical methods are as follows:

a. Surface water systems. Systems utilizing a surface water source, in whole or in part, shall monitor for sodium at least once annually at the entry point to the distribution system.

b. Groundwater systems. Systems utilizing groundwater sources shall monitor at least once every three years at the entry point to the distribution system.

c. Increased monitoring. Suppliers may be required to monitor more frequently where sodium levels are variable or if certain types of treatment are used, such as cation exchange softening.

d. Analytical methodology. Analyses for sodium shall be performed in accordance with 41.3(1)*"e"*(1).

e. Reporting. The sodium level shall be reported to the public by at least one of the following methods:

(1) The community public water supply shall notify the appropriate local public health officials of the sodium levels by written notice by direct mail within three months of receipt of the analytical results. A copy of each notice required by this subrule shall be sent to the department within ten days of its issuance.

(2) In lieu of the reporting requirement of 41.11(1)*"e"*(1), the community public water supply shall include the sodium level in its annual consumer confidence report, pursuant to 567—paragraph 42.3(3)*"c"*(1)"12."

f. CWSs using cation exchange treatment. Community water systems which utilize cation exchange treatment are required to collect one sodium sample of the finished water per year after all treatment. Analysis and reporting must be done in accordance with 41.11(1)*"d"* and *"e."*

41.11(2) *Special monitoring for ammonia.* Ammonia in the groundwater is a precursor to the development of nitrite and nitrate in a drinking water system. Both nitrite and nitrate are contaminants with acute health effects. This subrule lists the ammonia analytical methodology, sample preservation requirements, and holding times to be used for drinking water samples.

a. Analytical methodology. Analyses for ammonia shall be performed in accordance with the following methodology, with a detection limit of 0.1 mg/L ammonia as N:

Methodology	EPA[1]	Standard Methods (20th edition)	ASTM	USGS[2]	Other
Manual distillation at pH 9.5[4], followed by:	350.2	4500-NH3 B			973.49[3]
Titration	350.2	4500-NH3 C			
Manual electrode	350.3	4500-NH3 D or E	D1426-93(B)		
Automated phenate	350.1	4500-NH3 G		I-4523-85	
Automated electrode					See note[5]

[1]"Methods for Chemical Analysis of Water and Wastes," Environmental Protection Agency, EPA-600/4-79-020, Revised March 1983 and 1979 where applicable.

[2]Fishman, M.J., et al., "Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments," U.S. Department of the Interior, Techniques of Water—Resource Investigations of the U.S. Geological Survey, Denver, CO, Revised 1989, unless otherwise stated.

[3]"Official Methods of Analysis of the Association of Official Analytical Chemists," 15th edition, 1990.

[4]Manual distillation is not required if the samples are very low in turbidity; however, manual distillation should be used whenever matrix interferences could be present in the sample, and will be required to resolve any controversies.

[5]Ammonia, Automated Electrode Method, Industrial Method Number 379-75 WE, dated February 19, 1976, Bran & Luebbe (Technicon) Auto Analyzer II, Bran & Luebbe Analyzing Technologies, Inc., Elmsford, NY 10523.

b. Sample preservation and holding time. The system must collect a 500 mL grab sample into a plastic or glass bottle. The sample must be acidified at the time of collection to a pH of less than 2 by the addition of sulfuric acid (H_2SO_4) and refrigerated at 4 degrees Celsius. The sample must be analyzed within 28 days. If the sample is analyzed within 24 hours of collection, the sample acidification is not required.

567—41.12(455B) Alternative analytical techniques. With the written permission of this department, concurred in by the EPA, an alternative analytical technique may be employed. An alternative technique shall be acceptable only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any maximum contaminant level. The use of the alternative analytical technique shall not decrease the frequency of monitoring required by 567—41.2(455B) through 567—41.8(455B).

567—41.13(455B) Monitoring of interconnected public water supply systems. When a public water supply system supplies water to one or more other public water supply systems, the department may modify the monitoring requirements imposed by this part to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the department and concurred in by the administrator of the U.S. Environmental Protection Agency.

567—41.14(455B) Department analytical results used to determine compliance. Analytical results or other information compiled by departmental staff may be used to determine compliance with the maximum contaminant levels, action levels, or treatment techniques listed in 567—Chapters 41 and 43 or for initiating remedial action with respect to these violations.

567—41.15(455B) Monitoring of other contaminants. If the department determines that other contaminants are present in a public water supply, and the contaminants are known to pose, or scientific evidence strongly suggests that they pose, a threat to human health, the supplier of water may be required to monitor for such contaminants. The supplier of water will monitor at a frequency and in a manner which will adequately identify the magnitude and extent of the contamination. The monitoring frequency and sampling location will be determined by the department. All analytical results will be obtained using approved EPA methods and all analytical results will be submitted to the department for review and evaluation. Any monitoring required under this paragraph will be incorporated into an operation permit or an order.

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

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◊ Two or more ARCs

1 Effective date of [ARC4359A] 41.3(1)*"b"*(2)"3"; 41.3(1)*"c"*(2)"4," new sentence at end; 41.3(1)*"c"*(3)"6," "10"; 41.3(1)*"c"*(8), first sentence; 41.4(1)*"d"*(5)"4"; 41.5(1)*"a"*; 41.10(7)*"a"*(3); 41.11(2)*"a"*; 41.11(2)*"c"*(4); 41.11(2)*"c"*(5), first sentence, delayed 70 days by the Administrative Rules Review Committee at its meeting held November 9, 1993; delay lifted by the Committee December 14, 1993.

CHAPTER 42
PUBLIC NOTIFICATION, PUBLIC EDUCATION, CONSUMER CONFIDENCE REPORTS, REPORTING, AND RECORD MAINTENANCE

567—42.1(455B) Public notification.

42.1(1) *Applicability.* Each owner or operator of a public water system must give notice for all violations of public drinking water rules and for other situations, as listed in this subrule. The term "violations" includes violations of, or failure to comply with, the maximum contaminant level, maximum residual disinfection level, treatment technique, monitoring requirements, and testing procedures in 567—Chapters 40 through 43. The term "other situations" includes all situations determined by the department to require a public notice, such as a waterborne disease outbreak or other waterborne emergency; exceedance of the nitrate MCL by noncommunity systems where granted permission by the department under 567—paragraph 41.3(1)*"a"*; exceedance of fluoride level over 2.0 mg/L; availability of unregulated contaminant monitoring data in accordance with CFR Title 40, Part 141.40, failure to meet the terms of a compliance schedule; exceedance of a health advisory as determined by the department; failure to comply with the public notification requirements, public education requirements, or consumer confidence report requirements; failure to meet the terms of an administrative or court order; failure to meet the data and other reporting requirements; failure to retain a certified operator in accordance with 567—subrule 43.1(5); and any other situation where the department determines public notification is needed. Public notification is not required for ammonia monitoring conducted pursuant to 567—subrule 41.11(2).

a. Types of public notice. Public notice requirements are divided into three tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation are determined by the tier to which it is assigned.

(1) Tier 1 public notice is required for all drinking water violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

(2) Tier 2 public notice is required for all other drinking water violations and situations with potential to have serious adverse effects on human health.

(3) Tier 3 public notice is required for all other drinking water violations and situations not included in Tier 1 or Tier 2.

b. Notification. Each public water system must provide public notice to persons served by the water system, in accordance with this rule. A copy of the notice must also be sent to the department, in accordance with the requirements under paragraph 42.4(1)*"c."*

(1) Consecutive systems. Public water systems that sell or otherwise provide drinking water to other public water systems (i.e., to consecutive systems) are required to give public notice to the owner or operator of the consecutive system. The consecutive system is responsible for providing public notice to the persons it serves, and must meet the appropriate Tier requirements for the violation.

(2) Systems with multiple physically or hydraulically isolated distribution systems. If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the department may allow the system to limit distribution of the public notice only to persons served by that portion of the system which is out of compliance. Permission by the department to limit distribution of the notice must be granted in writing.

42.1(2) *Tier 1 public notice requirements.*

a. Violations and situations which require Tier 1 notice. The following types of violations or situations require Tier 1 public notice:

(1) Violation of the MCL for total coliforms when fecal coliform or *E. coli* are present in the water distribution system, as specified in 567—paragraph 41.2(1)*"b."*

(2) Failure by the water system to test for fecal coliforms or *E. coli* when any repeat sample tests positive for coliform, as specified in 567—subparagraph 41.2(1)*"c"*(4).

(3) Violation of the MCL for nitrate or nitrite, as defined in 567—subparagraph 41.3(1)*"b"*(1).

(4) Failure by the water system to collect a confirmation sample within 24 hours of the system's receipt of the first sample result showing an exceedance of the nitrate or nitrite MCL, when directed by the department, as specified in 567—paragraph 41.3(1)*"c"*(7)"2."

(5) Exceedance of the nitrate MCL by noncommunity water systems, where permitted to exceed the MCL by the department under 567—paragraph 41.3(1)*"a,"* as required under 42.1(7)*"c."*

(6) Violation of the MRDL for chlorine dioxide when one or more samples, taken in the distribution system on the day following an exceedance of the MRDL in the sample collected at the entrance to the distribution system, exceeds the MRDL, as defined in 567—paragraph 43.6(1)*"b."*

(7) Failure by the water system to collect the required chlorine dioxide samples in the distribution system on the day following an exceedance of the MRDL in the sample collected at the entrance to the distribution system.

(8) Violation of the treatment technique requirement by a surface water or influenced groundwater public water system resulting from a single exceedance of the maximum allowable turbidity limit, as specified in rule 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B), where the department determines after consultation with the system that a Tier 1 notice is required, or where the consultation with the department does not take place within 24 hours after the system learns of the violation.

(9) Occurrence of a waterborne disease outbreak, as defined in rule 567—40.2(455B), or other waterborne emergency, such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

(10) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the department either in its rules or on a case-by-case basis.

b. Timing of Tier 1 public notice. Public water systems must:

(1) Provide a public notice as soon as practical but no later than 24 hours after the system learns of the violation;

(2) Initiate consultation with the department as soon as practical, but no later than 24 hours after the system learns of the violation or situation, to determine additional public notice requirements. For consultation with department staff after normal business hours, the system should contact the department via the Emergency Response Hotline telephone number (515)281-8694; and

(3) Comply with any additional public notification requirements, including any repeat notices or direction on the duration of the posted notices, that are established as a result of the consultation with the department. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served. All NTNCs must notify the parent or legal guardian of each child under 18 years of age and of any nursing home resident of the Tier 1 violation as soon as possible and within 72 hours, including the information required in the public notice under subrule 42.1(5).

c. Form and manner of Tier 1 public notice. Public water systems must provide the notice within 24 hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the public water system must fit the specific situation, and must be designed to reach residential, transient, and nontransient users of the water system. In order to reach all persons served, water systems are to use, at a minimum, one or more of the following forms of delivery. The department may require that multiple forms of notification be used in a specific situation.

(1) Appropriate broadcast media, such as radio or television;

(2) Posting of the notice in conspicuous locations throughout the area served by the water system;

(3) Hand delivery of the notice to persons served by the water system; or

(4) Another delivery method approved in writing by the department.

42.1(3) *Tier 2 public notice requirements.*

a. Violations and situations which require Tier 2 notice. The following types of violations or situations require Tier 2 public notice:

(1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under subrule 42.1(2);

(2) Violations of the monitoring and testing procedure requirements, where the department determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation;

(3) Failure to comply with the requirements of any compliance schedule prescribed in an operation permit, administrative order, or court order pursuant to 567—subrule 43.2(5); and

(4) Failure to comply with a health advisory as determined by the department.

b. Timing of Tier 2 public notice. Public water systems must:

(1) Provide the initial public notice as soon as practical, but no later than 30 days after the system learns of the violation. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than 7 days, even if the violation or situation is resolved. The department may allow additional time for the initial notice of up to three months from the date the system learns of the violation; however, such an extension must be on a case-by-case basis and be made in writing by the department.

(2) The public water system must repeat the notice every three months as long as the violation or situation persists, unless the department determines that appropriate circumstances warrant a different repeat frequency. If the department determines that a repeat notice frequency of longer than every three months is allowed, that decision must be made in writing by the department. In no circumstance may the repeat notice be given less frequently than once per year. Repeat notices for a total coliform bacteria MCL violation or a turbidity treatment technique violation must be made every three months or more frequently.

(3) A public water system using surface water or influenced groundwater with a treatment technique violation resulting from a single exceedance of the maximum allowable turbidity limit pursuant to rule 567—43.5(455B) or 567—43.9(455B) must consult with the department as soon as practical, but no later than 24 hours after the public water system learns of the violation, to determine whether a Tier 1 or Tier 2 public notice is required to protect public health. If the consultation does not occur within the 24-hour period, the public water system must distribute a Tier 1 notice of the violation within the next 24 hours, or no later than 48 hours after the system learns of the violation, following the requirements of paragraphs 42.1(2)*"b"* and 42.1(2)*"c."*

c. Form and manner of Tier 2 public notice. Public water systems must provide the initial public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of public water system, but it must at a minimum meet the following requirements:

(1) Community water systems must provide notice by the following methods, unless directed otherwise in writing by the department:

1. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

2. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses, such as house renters, apartment dwellers, university students, nursing home patients, or prison inmates. Other methods may include:

- Publication in a local newspaper;
- Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;
- Posting in public places served by the system or on the Internet; or
- Delivery of the notice to community organizations.

(2) Noncommunity water systems (TNC and NTNC) must provide notice by the following methods, unless directed otherwise in writing by the department:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

2. Any other method reasonably calculated to reach other persons served by the system who would not normally be reached by posting, mail, or direct delivery. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely visit. Other methods may include:

- Publication in a local newspaper or newsletter distribution to customers;
- Use of electronic mail (E-mail) to notify employees or students; or
- Delivery of multiple copies in central locations, such as community centers.

3. In addition to the requirements in 42.1(3)*"c"*(2)"1" and "2," nontransient noncommunity public water systems that serve children under 18 years of age, such as child care facilities, schools, and hospitals, or nursing home residents, including elder care facilities, shall provide the public notice in writing to the parent or legal guardian of each person within the time period specified by the department. The content of the public notice must meet the requirements of subrule 42.1(5).

42.1(4) *Tier 3 public notice requirements.*

a. Violations and situations which require Tier 3 notice. The following types of violations or situations require Tier 3 public notice:

(1) Monitoring violations under 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(2) Failure to comply with a testing procedure established in 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(3) Availability of unregulated contaminant monitoring results, as required of certain public water supply systems by CFR Title 40, Part 141.40, as required under paragraph 42.1(7)*"a"*;

(4) Exceedance of the fluoride level of 2.0 mg/L and not exceeding the MCL of 4.0 mg/L, as required under paragraph 42.1(7)*"b"*;

(5) Failure to report data or analytical results required under 567—Chapters 41, 42, and 43 to the department;

(6) Failure to meet the requirements of this chapter for public notification, public education, or the development and distribution of the Consumer Confidence Report;

(7) Failure to retain a certified operator in accordance with 567—subrule 43.1(5) and the department determines that public notification is required; and

(8) Any other situation where the department determines public notification is needed.

b. Timing of Tier 3 public notice.

(1) Initial notice.

1. For violations or situations listed in subparagraphs 42.1(4)*"a"*(1), (2), (5), and (6), public water systems must provide the initial public notice within 12 months after the public water system learns of the violation or situation. If the violation pertains to a contaminant that could have acute health effects as determined by the department, such as coliform bacteria, nitrate, nitrite, or turbidity, the initial public notice must be provided within 3 months. If the public notice is posted, the notice must remain in place for as long as the violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to subparagraph 42.1(4)*"a"*(3), the system must provide the initial public notice within 12 months of receiving the unregulated contaminant monitoring results.

3. For subparagraphs 42.1(4)*"a"*(4), (7), and (8), the timing of the initial notice is at the discretion of the department, but the notice must be made within 12 months of the violation or situation.

(2) Repeat notice.

1. For violations or situations listed in subparagraphs 42.1(4)*"a"*(1), (2), (4), (5), and (6), public water systems must repeat the public notice every 12 months in which the violation or situation persists. If the violation pertains to a contaminant that could have acute health effects, such as coliform bacteria, nitrate, nitrite, or turbidity, the system must repeat the public notice every 3 months in which the violation or situation persists. If the public notice is posted, the notice must remain in place for as long as the

violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to subparagraph 42.1(4)*"a"*(3), the system is not required to repeat the public notice, once the initial public notice requirement has been met.

3. For subparagraphs 42.1(4)*"a"*(4), (7), and (8), the requirement for and timing of the repeat notice is at the discretion of the department and, if required, the notice must be made within 12 months of the initial notice.

c. Form and manner of Tier 3 public notice. Public water systems must provide the initial notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

(1) Community water systems. Unless directed otherwise in writing by the department, community water systems must provide notice by:

1. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

2. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery notice. Such persons may include those who do not pay water bills or do not have service connection addresses, such as house renters, apartment dwellers, university students, nursing home patients, or prison inmates. Other methods may include:

- Publication in a local newspaper;
- Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;
- Posting in public places or on the Internet; or
- Delivery of the notice to community organizations.

3. Use of the Consumer Confidence Report for initial and repeat notices. For community water systems, the Consumer Confidence Report (CCR) required under 567—42.3(455B) may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as:

- The CCR is provided to persons served within the time frames specified in 42.1(4)*"b"*;
- The Tier 3 notice contained in the CCR follows the content requirements under 42.1(5); and
- The CCR is distributed following the delivery requirements under 42.1(4)*"c"*(1) and (2).

(2) Noncommunity systems (TNC and NTNC). Unless directed otherwise in writing by the department, noncommunity water systems must provide notice by:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

2. Any other method reasonably calculated to reach other persons served by the system, if they would not normally be reached by the posted, mailed, or delivered notice. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely visit. Other methods may include:

- Publication in a local newspaper or newsletter distributed to employees;
- Use of electronic mail (E-mail) to notify employees or students; or
- Delivery of multiple copies in central locations, such as community centers.

42.1(5) *Content of the public notice.*

a. Required public notice elements. Each public notice must include the following elements:

(1) A description of the violation or situation, including the contaminant(s) of concern and, as applicable, the contaminant level(s);

(2) When the violation or situation occurred;

(3) Any potential adverse health effects from the violation or situation, including the standard language under subparagraph 42.1(5)*"c"*(1) or (2), whichever is applicable;

(4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water;

(5) Whether alternative water supplies or bottled water should be used, or require a boil-water order;

(6) What actions consumers should take, including when they should seek medical help, if known;

(7) What the system is doing to correct the violation or situation;

(8) When the water system expects to return to compliance or resolve the situation;

(9) The name, business address, and telephone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice; and

(10) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subparagraph 42.1(5)*"c"*(3), where applicable.

b. Appearance and presentation of the public notice.

(1) Each public notice must:

1. Be displayed in a conspicuous way when printed or posted;
2. Not contain overly technical language or very small print;
3. Not be formatted in a way that defeats the purpose of the notice; and
4. Not contain language that nullifies the purpose of the notice.

(2) Each public notice must comply with multilingual requirements, as follows:

1. For public water systems serving a large proportion of non-English speaking consumers, as determined by the department, the public notice must contain information in the appropriate language(s) about the importance of the notice. Alternately, the public notice must contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate language.

2. In cases where the department has not determined what constitutes a large proportion of non-English speaking consumers, the public water system must include in the public notice the same information as in 42.1(5)*"b"*(2)"1," where appropriate, to reach a large proportion of non-English speaking persons served by the water system.

c. Standard language requirements. Public water systems are required to include the following standard language in their public notice:

(1) Standard language about health effects for MCL violations, MRDL violations, or treatment technique violations. Public water systems must include in each public notice the language about health effects specified in Appendix A for the specific contaminant, disinfectant residual, or treatment technique that incurred the violation.

(2) Standard language for monitoring and testing procedure violations. Public water systems must include the following language in their notice, including the bracketed language necessary to complete the notice, for all monitoring and testing procedure violations:

> We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we [use either the phrase "did not monitor or test" or "did not complete all monitoring or testing," whichever is more applicable] for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time.

(3) Standard language to encourage the distribution of the public notice to all persons served. Public water systems must include in their notice the following language, where applicable:

> Please share this information with all the other people who drink this water, especially those who may not have received this notice directly, such as people in apartments, nursing homes, schools, and businesses. You can do this by posting this notice in a public place or distributing copies by hand or mail.

42.1(6) *Notice to new billing units or new customers.*

a. Community water systems. Community water systems must give a copy of the most recent public notice for any continuing violation or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.

b. Noncommunity water systems. Noncommunity water systems must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation or other situation requiring a public notice for as long as the violation or other situation persists.

42.1(7) *Special notices.*

a. Availability of unregulated contaminant monitoring results.

(1) Applicability. The owner or operator of a community water system or nontransient noncommunity water system required to monitor under the federal unregulated contaminant monitoring rule must notify persons served by the system of the availability of the results of such sampling no later than 12 months after the monitoring results are known.

(2) Form and manner of notice. The form and manner of the public notice must follow the requirements for a Tier 3 public notice prescribed in paragraph 42.1(4)*"c."* The notice must also identify a person and provide the telephone number to contact for information on the monitoring results.

b. Fluoride level between 2.0 and 4.0 mg/L at community or nontransient noncommunity water systems.

(1) Applicability. Community and nontransient noncommunity water systems that exceed the fluoride level of 2.0 mg/L as determined by the last single sample taken in accordance with 567—paragraph 41.3(1)*"c"* but do not exceed the MCL of 4.0 mg/L, must provide the public notice in subparagraph 42.1(7)*"b"*(5) to persons served. If the nontransient noncommunity public water system is a school or child care facility that serves children under nine years of age, the public water system shall provide the public notice in writing to the legal guardians of each child within the time period specified by the department.

(2) Initial notice. Public notice must be provided as soon as practical but no later than three months from the day the water system learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the Public Health Dental Director, Iowa Department of Public Health, Lucas State Office Building, Des Moines, Iowa 50319-0075.

(3) Repeat notice. The public water system must repeat the notice at least every three months for as long as the fluoride level exceeds 2.0 mg/L. If the public notice is posted, the notice must remain in place for as long as the fluoride level exceeds 2.0 mg/L, but in no case less than seven days (even if the exceedance is eliminated). The department may require the repeat notice to be conducted more frequently.

(4) Form and manner of notice. The form and manner of the public notice, including repeat notices, must follow the requirements for a Tier 3 public notice in paragraph 42.1(4)*"c."*

(5) Mandatory language. The notice must contain the following language, including the bracketed language necessary to complete the notice:

> This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth, called dental fluorosis. The drinking water provided by your public water system [PWS name] has a fluoride concentration of [analytical result] mg/L.
>
> Dental fluorosis, in its moderate or severe forms, may result in a brown staining and pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.
>
> Drinking water containing more than 4.0 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4.0 mg/L of fluoride, but we are required to notify you when we discover that the fluoride levels in your drinking water exceed 2.0 mg/L because of this cosmetic dental problem.
>
> For more information, please call [name of the person designated as the water system contact] of [name of public water system] at [telephone number]. Some home water treatment units are also available to remove fluoride from drinking water. In Iowa, home water treatment units are regulated under 641—Chapter 14, with the water treatment unit registration program administered

by the Iowa department of public health's environmental health division. In addition, you may call the National Sanitation Foundation (NSF) International, at 1-877-867-3435.

c. Nitrate level between 10 and 20 mg/L for noncommunity water systems, where allowed by the department.

(1) Applicability. The owner or operator of a noncommunity water system granted permission by the department under 567—paragraph 41.3(1)*"a"* to exceed the nitrate MCL must provide notice to persons served according to the requirements for a Tier 1 notice under paragraphs 42.1(2)*"a"* and *"b."*

(2) Form and manner of notice. Noncommunity water systems granted permission by the department to exceed the nitrate MCL under 567—paragraph 41.3(1)*"a"* must provide continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure, according to the requirements for Tier 1 notice delivery under paragraph 42.1(2)*"c"* and the content requirements under subrule 42.1(5).

d. Repeated failure to conduct monitoring of the source water for Cryptosporidium.

(1) Applicability. The owner or operator of any public water system that is required to monitor source water under 567—43.11(455B) must notify persons served by the water system that monitoring has not been completed as specified no later than 30 days after the system has failed to collect samples in any three months of monitoring as specified in 567—paragraph 43.11(3)*"a."* The notice must be repeated as specified in 42.1(3).

(2) Form and manner of notice. The form and manner of the special notice must follow the Tier 2 public notice requirements in 42.1(3) and be presented as required in 42.1(5)*"b."*

(3) Mandatory language. The special notice must contain the following language, including the language necessary to fill in the brackets.

"We are required to monitor the source of your drinking water for *Cryptosporidium*. Results of the monitoring are to be used to determine whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by [required bin determination date]. We ["did not monitor or test" or "did not complete all monitoring or testing"] on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [name of water system contact] of [name of water system] at [telephone number]."

(4) Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

e. Failure to determine bin classification or mean Cryptosporidium level.

(1) Applicability. The owner or operator of a public water system that is required to determine a bin classification under 567—subrule 43.11(5) must notify persons served by the water system that the determination has not been made as required no later than 30 days after the system has failed to report the determination as specified in 567—paragraph 43.11(5)*"c."* The notice must be repeated as specified in 42.1(3). The notice is not required if the system is in compliance with a department-approved schedule to address the violation.

(2) Form and manner of notice. The form and manner of the special notice must follow the Tier 2 public notice requirements in 42.1(3) and be presented as required in 42.1(5)*"b."*

(3) Mandatory language. The special notice must contain the following language, including the language necessary to fill in the brackets.

"We are required to monitor the source of your drinking water for *Cryptosporidium* in order to determine by [date] whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [name of water system contact] of [name of water system] at [telephone number]."

(4) Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

42.1(8) *Notice by department on behalf of the public water system.* The department may give the public notice on behalf of the owner or operator of the public water system if the department complies with the public notification requirements of this rule. However, the owner or operator of the public water system remains responsible for ensuring the public notification requirements of this rule are met.

42.1(9) *Public notice requirements in the operation permit compliance schedule.* When the department determines that a public water supply system cannot promptly comply with one or more maximum contaminant levels pursuant to 567—Chapter 41, and that there is no immediate, unreasonable risk to the health of persons served by the system, an operation permit will be drafted that may include interim contaminant levels or a compliance schedule. The permit applicant may be required by the department to present the reasons the system cannot come into immediate compliance. Prior to issuance of a final permit, notice and opportunity for public participation must be given in accordance with this subrule. The notice shall be circulated in a manner designed to inform interested and potentially interested persons of any proposed interim contaminant level or compliance schedule.

a. Preparation of notice. The public notice shall be prepared by the department and circulated by the applicant within its geographical area through publication in a local newspaper with general circulation or through mail or direct delivery to the system's customers. The public notice shall be mailed by the department to any person upon request.

b. Public comment period. The department shall provide a period of at least 30 days following the date of the public notice during which time interested persons may submit their written views on the tentative determinations with respect to the operation permit. All written comments submitted during the 30-day comment period shall be retained by the department and considered in the formulation of the department's final determination with respect to the operation permit. The department may extend the comment period.

c. Content of notice. The content of the public notice of a proposed operation permit shall include at least the following:

(1) The name, address, and telephone number of the department.

(2) The name and address of the applicant.

(3) A statement of the department's tentative determination to issue the operation permit.

(4) A brief description of each applicant's water supply operations which necessitate the proposed permit conditions.

(5) A brief description of the procedures for the formulation of final determinations, including the 30-day comment period required by 42.1(9)*"b."*

(6) The right to request a public hearing pursuant to 42.1(9)*"d"* and any other means by which interested persons may influence or comment upon those determinations.

(7) The address and telephone number of places at which interested persons may obtain further information, request a copy of the proposed operation permit prepared pursuant to 42.1(9), and inspect and copy the application forms and related documents.

d. Public hearings on proposed operation permits. The applicant or any interested agency, person or group of persons may request or petition for a public hearing with respect to the proposed action. Any such request shall clearly state issues and topics to be addressed at the hearing. Any such request or petition for public hearing must be filed with the department within the 30-day period prescribed in 42.1(9)*"b"* and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The department shall hold an informal and noncontested case hearing if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. Frivolous or insubstantial hearing requests may be denied by the department. Instances of doubt should be resolved in favor of holding the hearing. Any hearing held pursuant to this subrule shall be held in the geographical area of the system, or other appropriate area at the discretion of the department. The department may, as appropriate, consider related groups of permit applications at the hearing.

e. Public notice of public hearings.

(1) Public notice of any hearing held pursuant to 42.1(9) shall be circulated at least as widely as the notice under 42.1(9)*"a"* at least 30 days in advance of the hearing.

(2) The contents of the public notice of any hearing held pursuant to 42.1(9) shall include at least the following:

1. The name, address, and telephone number of the department;
2. The name and address of each applicant whose application will be considered at the hearing;
3. A brief reference to the public notice previously issued, including identification number and date of issuance;
4. Information regarding the time and location for the hearing;
5. The purpose of the hearing;
6. A concise statement of the issues raised by the person requesting the hearing;
7. The address and telephone number of the premises where interested persons may obtain further information, request a copy of the draft operation permit or modification prepared pursuant to 42.1(9), and inspect and copy the application forms and related documents; and
8. A brief description of the nature of the hearing, including the rules and procedures to be followed.

f. Decision by the department. The department shall issue or deny the operation permit within 30 days after the termination of the public hearing held pursuant to 42.1(9), or, if no public hearing is held, within 30 days after the termination of the period for requesting a hearing.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—42.2(455B) Public education for lead action level exceedance. A water system that exceeds the lead action level based on tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* shall deliver the public education materials contained in 42.2(1) for NTNC systems and in 42.2(2) and 42.2(3) for CWS systems, in accordance with the requirements in 42.2(4).

42.2(1) *Content of written public education materials for NTNC systems.* A nontransient noncommunity system shall either include the text specified in 42.2(2), or shall include the following text in all of the printed materials it distributes through its lead public education program. Systems may delete information pertaining to lead service lines upon approval by the department if no lead service lines exist anywhere in the water system service area. Any additional information presented by a system shall be consistent with the information below and be written in plain English that can be understood by lay people.

a. Introduction. The United States Environmental Protection Agency (EPA) and (insert name of water supplier) are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under federal law we are required to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we control if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation, please give us a call at (insert water system's phone number). This brochure explains the simple steps you can take to protect yourself by reducing your exposure to lead in drinking water.

b. Health effects of lead. Lead is a common metal found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery, porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination—such as dirt and dust—that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

c. Lead in drinking water.

(1) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas

and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

(2) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies such as rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to water mains (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2 percent lead and restricted the lead content of faucets, pipes and other plumbing materials to 8.0 percent.

(3) When water stands for several hours or more in lead pipes or plumbing systems containing lead, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon if the water has not been used all day, can contain fairly high levels of lead.

d. Steps you can take to reduce exposure to lead in drinking water.

(1) Let the water run from the tap before using it for drinking or cooking anytime the water in a faucet has gone unused for more than six hours. The longer water resides in plumbing, the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15 to 30 seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one gallon of water.

(2) Do not cook with, or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it on the stove.

(3) The steps described above will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water with a low-lead content for drinking and cooking.

(4) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include: (insert the name or title of the facility official if appropriate) at (insert phone number) can provide you with information about your facility's water supply; and the Iowa department of public health at (insert phone number) or the (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead.

42.2(2) *Content of written public education materials for community systems.* A community water system shall include the following text in all of the printed materials it distributes through its lead public education program. Systems may delete information pertaining to lead service lines if no lead service lines exist anywhere in the water system service area, upon approval by the department. Public education language in 42.2(2)*"d"*(2)"5" and 42.2(2)*"d"*(4)"2" may be modified regarding building permit record availability and consumer access to these records, if approved by the department. Any additional information presented by a system shall be consistent with the information below and be easily understood by laypersons.

a. Introduction. The United States Environmental Protection Agency (EPA) and (insert name of water supplier) are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under federal law we are required to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace each lead service line that we control if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation, please give us a call at (insert water system's

phone number). This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

b. Health effects of lead. Lead is a common metal found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery, porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination—such as dirt and dust—that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

c. Lead in drinking water.

(1) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

(2) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies such as rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2 percent lead and restricted the lead content of faucets, pipes and other plumbing materials to 8.0 percent.

(3) When water stands for several hours or more in lead pipes or plumbing systems containing lead, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.

d. Steps you can take in the home to reduce exposure to lead in drinking water.

(1) Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains excessive concentrations of lead. Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call (insert phone number of water system).

(2) If a water test indicates that the drinking water drawn from a tap in your home contains lead above 15 ppb, then you should take the following precautions:

1. Let the water run from the tap before using it for drinking or cooking anytime the water in a faucet has gone unused for more than six hours. The longer water resides in your home's plumbing the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15 to 30 seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one or two gallons of water and costs less than (insert a cost estimate based on flushing two times a day for 30 days) per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap, and whenever possible, use the first flush water to wash the dishes or water the plants. If you live in a high-rise building, letting the water flow before using it may not work to lessen your risk from lead. The plumbing systems have more, and sometimes larger, pipes than smaller buildings. Ask your landlord for help in locating the source of the lead and for advice on reducing the lead level.

2. Try not to cook with, or drink water from, the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it on the stove.

3. Remove loose lead solder and debris from the plumbing materials installed in newly constructed homes, or homes in which the plumbing has recently been replaced, by removing the faucet strainers from all taps and running the water from three to five minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.

4. If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, notify the plumber who did the work and request that the plumber replace the lead solder with lead-free solder. Lead solder looks dull gray and, when scratched with a key, looks shiny. In addition, notify the Iowa department of natural resources about the violation.

5. Determine whether or not the service line that connects your home or apartment to the water main is made of lead. The best way to determine if your service line is made of lead is by either hiring a licensed plumber to inspect the line or by contacting the plumbing contractor who installed the line. You can identify the plumbing contractor by checking the city's record of building permits which should be maintained in the files of the (insert name of department that issues building permits). A licensed plumber can at the same time check to see if your home's plumbing contains lead solder, lead pipes, or pipe fittings that contain lead. The public water system that delivers water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than 15 ppb to drinking water, after our comprehensive treatment program is in place, we are required to replace the portion of the line we own. If the line is only partially controlled by the (insert name of the city, county, or water system that controls the line), we are required to provide the owner of the privately owned portion of the line with information on how to replace the privately owned portion of the service line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we also are required to notify you in advance and provide you with information on the steps you can take to minimize exposure to any temporary increase in lead levels that may result from the partial replacement, to take a follow-up sample at our expense from the line within 72 hours after the partial replacement, and to mail or otherwise provide you with the results of that sample within three business days of receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.

6. Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.

(3) The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead concentrations in excess of 15 ppb after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:

1. Purchase or lease a home treatment device. Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all of the devices require periodic maintenance and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap. However, all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.

2. Purchase bottled water for drinking and cooking.

(4) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:

1. (Insert the name of city or county department of public utilities) at (insert phone number) can provide you with information about your community's water supply, and a list of local laboratories that have been certified by EPA for testing water quality;

2. (Insert the name of city or county department that issues building permits) at (insert phone number) can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home; and

3. The Iowa department of public health at (insert phone number) or the (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead and how you can have your child's blood tested.

(5) The following is a list of some approved laboratories in your area that you can call to have your water tested for lead. (Insert names and phone numbers of at least two laboratories.)

42.2(3) *Content of broadcast materials.* A water system shall include the following information in all public service announcements submitted under its lead public education program to television and radio stations for broadcasting:

a. Why should everyone want to know the facts about lead and drinking water? Because unhealthy amounts of lead can enter drinking water through the plumbing in your home. That's why I urge you to do what I did. I had my water tested for (insert "free" or dollar amount per sample). You can contact the (insert the name of the city or water system) for information on testing and on simple ways to reduce your exposure to lead in drinking water.

b. To have your water tested for lead, or to get more information about this public health concern, please call (insert the phone number of the city or water system).

42.2(4) *Delivery of a public education program.*

a. In communities and in NTNC facilities where a significant proportion of the population speaks a language other than English, public education materials shall be communicated in the appropriate language(s).

b. A community water system that fails to meet the lead action level on the basis of tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* and that is not already repeating public education tasks pursuant to 42.2(4)*"c," "g,"* or *"h"* shall, within 60 days:

(1) Insert notices in each customer's water utility bill containing the information in 42.2(2) along with the following alert on the water bill itself in large print: "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION." A CWS having a billing cycle that does not include billing within 60 days of exceeding the action level, or that cannot insert information in the water utility bill without making major changes to its billing system, may use a separate mailing to deliver the information in 42.2(2), as long as the information is delivered to each customer within 60 days of exceeding the action level. Such water systems shall also include the water bill "alert" language previously specified.

(2) Submit the information in 42.2(2) to the editorial departments of the major daily and weekly newspapers circulated throughout the community.

(3) Deliver pamphlets or brochures that contain the public education materials in 42.2(2)*"b"* and *"d"* to facilities and organizations, including the following: public schools and local school boards; city or county health departments; Women, Infants, and Children and Head Start program(s) whenever available; public and private hospitals and clinics; pediatricians; family planning clinics; and local welfare agencies.

(4) Submit the public service announcement in 42.2(3) to at least five of the radio and television stations with the largest audiences that broadcast to the community served by the water system.

c. A community water system shall repeat the tasks in 42.2(4)*"b"*(1) to (3) every 12 months and the tasks in 42.2(4)*"b"*(4) every 6 months for as long as the system exceeds the lead action level.

d. Within 60 days after it exceeds the lead action level (unless it already is repeating public education tasks pursuant to 42.4(4)*"e"*), a nontransient noncommunity water system shall deliver the public education materials in 42.2(1) or 42.2(2) as follows:

(1) Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

(2) Distribute informational pamphlets or brochures on lead in drinking water to each person served by the nontransient noncommunity water system. The department may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as the system achieves at least the same coverage.

e. A nontransient noncommunity water system shall repeat the tasks in 42.2(4)*"c"* at least once during each calendar year in which the system exceeds the lead action level.

f. A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period conducted pursuant to 567—paragraph 41.4(1)*"c."* Such a system shall recommence public education in accordance with this subrule if it subsequently exceeds the lead action level during any monitoring period.

g. Special allowances for CWS with restricted populations. A CWS may apply in writing to the department to use the text specified in 42.2(1) in lieu of the text in 42.2(2), and to perform the tasks listed in 42.2(4)*"d"* and 42.2(4)*"e"* instead of in 42.2(4)*"b"* and 42.2(4)*"c"* and if:

(1) The system is a facility such as a hospital or prison, where the population served is not capable of or is prevented from making improvements to plumbing or installing point-of-use treatment devices; and

(2) The system provides water as part of the cost of services provided and does not separately charge for water consumption.

h. Special allowances for a CWS serving 3,300 or fewer persons.

(1) A CWS serving 3,300 or fewer persons may omit the task in 42.2(4)*"b"*(4). As long as it distributes notices containing the information contained in 42.2(2) to every household served by the system, the system may further limit its public education programs as follows:

1. A system serving 500 or fewer persons may forego the task in 42.2(4)*"b"*(2). Such a system may limit the distribution of the public education materials required under 42.2(4)*"b"*(3) to facilities and organizations served by the system that are most likely to be visited regularly by children and pregnant women, unless the system is notified by the department that it must make a broader distribution.

2. If approved in writing by the department, a system serving 501 to 3,300 persons may omit the newspaper notification and limit the distribution of the public education materials required under 42.2(4)*"b"*(3) to facilities and organizations served by the system that are most likely to be visited regularly by children and pregnant women.

(2) A CWS serving 3,300 or fewer persons that delivers public education in accordance with 42.2(4)*"h"*(1) shall repeat the required public education tasks at least once during each calendar year in which the system exceeds the lead action level.

42.2(5) *Supplemental monitoring and notification of results.* A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with 567—paragraph 41.4(1)*"c"* shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system required to collect and analyze the sample itself.

42.2(6) *Special lead ban public notice.* Rescinded IAB 10/18/00, effective 11/22/00.

567—42.3(455B) Consumer confidence reports.

42.3(1) *Applicability and purpose.* This rule applies to all community public water supply systems. The purpose of this rule is to establish the minimum requirements for the content of annual reports that community water systems must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants in the drinking water in an accurate and understandable manner. The department may assign public notification requirements and assess administrative penalties to any community public water supply system which fails to fulfill the requirements of this rule.

42.3(2) *Reporting frequency.*

a. Existing community water systems. Existing community water systems must deliver the first report by October 19, 1999; the second report by July 1, 2000; and subsequent reports annually by July 1 thereafter.

b. New community water systems. New community water systems must deliver their first report by July 1 of the year after their first full calendar year in operation, and annually thereafter.

c. A CWS which sells water to another CWS. A community water system that sells water to another community water system must deliver the applicable information required in subrule 42.3(3) to the buyer (or consecutive) system:

(1) No later than April 19, 1999, for the 1998 report; by April 1, 2000, for the 1999 report; and annually by April 1 thereafter, or

(2) On a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

When a consecutive system sells water to another community water system, the seller must provide all applicable information in 42.3(3) to the CWS buying the water from them.

42.3(3) *Content of the reports.* Each annual consumer confidence report must contain the following information, at a minimum:

a. Source water identification. The report must identify the source(s) of water delivered by the community public water supply system, including the following:

(1) Type of water (e.g., surface water, groundwater, groundwater purchased from another public water supply).

(2) Commonly used name of the aquifer, reservoir, or river (if any) and location of the body (or bodies) of water.

(3) If a source water assessment has been completed, notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the department, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the department or its designee, or written by the owner or operator.

b. Definitions. Each report using any of the following terms must include the applicable definitions:

(1) "Maximum Contaminant Level Goal (MCLG)" means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(2) "Maximum Contaminant Level (MCL)" means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

(3) "Maximum Residual Disinfectant Level Goal (MRDLG)" means the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

(4) "Maximum Residual Disinfectant Level (MRDL)" means the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(5) A report which contains data on a contaminant for which EPA has set a treatment technique or an action level must include one or both of the following definitions, as applicable:

1. "Treatment technique (TT)" means a required process intended to reduce the level of a contaminant in drinking water.

2. "Action level (AL)" means the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

c. Information on detected contaminants. This paragraph specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*, which is listed in 42.3(3)*"c"*(2)) as follows: contaminants subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants); contaminants for which monitoring is required by CFR Title 40, Part 141.40 (unregulated contaminants), 567—subrule 41.11(1) (sodium monitoring), and 567—41.15(455B) (other contaminants); and disinfection byproducts or microbial contaminants for which monitoring is required by 567—Chapters 40 to 43, except as provided under 42.3(3)*"e"*(1), and which are detected in the finished water. The ammonia monitoring conducted pursuant to 567—subrule 41.11(2) is not subject to this paragraph. For the purposes of this subrule, "detected" means at or above the levels prescribed by the following: inorganic contaminants in 567—subparagraph 41.3(1)*"e"*(1); volatile organic contaminants in 567—paragraph 41.5(1)*"b"*; synthetic organic contaminants in 567—paragraph 41.5(1)*"b"*; radionuclide contaminants

in 567—paragraph 41.8(1)*"c"*; disinfection byproducts in 567—paragraph 83.6(7)*"a"*(6)"3"; and other contaminants with health advisory levels, as assigned by the department.

(1) The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report must be displayed separately.

1. The data must be derived from data collected to comply with departmental monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter. Where a system is allowed to monitor for contaminants less often than once a year, the table(s) must include the results and date of the most recent sampling and a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than five years need be included.

2. For detected regulated contaminants, which are listed in Appendix C, the table(s) must contain:

- The MCL for that contaminant, expressed as a number equal to or greater than 1.0 (as provided in Appendix C);
- The MCLG for that contaminant, expressed in the same units as the MCL;
- If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definition for treatment technique or action level, as appropriate, specified in 42.3(3)*"b"*(4).

3. For contaminants subject to an MCL, except turbidity and total coliforms, the table must contain the highest contaminant level used to determine compliance with a primary drinking water standard and the range of detected levels, as follows:

- When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL (such as inorganic compounds).
- When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL (such as organic compounds and radionuclides). For TTHM and HAA5 MCLs, systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all locations that exceed the MCL.
- When compliance with an MCL is determined on a systemwide basis by calculating a running annual average of all samples at all sampling points: the average and range of detection expressed in the same units as the MCL.

NOTE: When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix C.

4. For turbidity: When it is reported pursuant to 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B): the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B) for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

5. For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

6. For total coliform:

- The highest monthly number of positive samples for systems collecting fewer than 40 samples per month; or
- The highest monthly percentage of positive samples for systems collecting at least 40 samples per month.

7. For fecal coliform, the total number of positive samples.

8. The likely source(s) of detected contaminants to the best of the owner's or operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the owner or operator. If the owner

or operator lacks specific information on the likely contaminant source, the report must include one or more of the typical sources for that contaminant listed in Appendix C, which are most applicable to the system.

9. If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, systems may produce separate reports tailored to include data for each service area.

10. The table(s) must clearly identify any data indicating MCL, MRDL, or TT violations, and the report must contain a clear and readily understandable explanation of the violation including:

- The length of the violation,
- The potential adverse health effects,
- Actions taken by the system to address the violation, and
- The relevant language from Appendix C to describe the potential health effects.

11. For detected unregulated contaminants for which monitoring is required, except *Cryptosporidium*, the table(s) must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

12. Community public water supply systems may list the most recent results of the special sodium monitoring requirement according to 567—subrule 41.11(1) in the annual report, instead of providing a separate public notification.

13. If a contaminant which does not have an MCL, MRDL, TT, or AL is detected in the water, the PWS must contact the department for the specific health effects language, health advisory level, and contamination sources.

(2) If monitoring indicates that *Cryptosporidium* may be present in the source water or the finished water, or that radon may be present in the finished water, the report must include:

1. A summary of the *Cryptosporidium* monitoring results;
2. The radon monitoring results; and
3. An explanation of the significance of the results.

(3) If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, the system must report any results which may indicate a health concern. To determine if results may indicate a health concern, the community public water supply can determine if there is a current or proposed maximum contaminant level, maximum residual disinfectant level, treatment technique, action level, or health advisory by contacting the department or by calling the national Safe Drinking Water Hotline ((800)426-4791). The department considers the detection of a contaminant above a proposed MCL or health advisory to indicate possible health concerns. For such contaminants, the report should include:

1. The results of the monitoring; and
2. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(4) If the system was required to comply with the federal Information Collection Rule pursuant to the Code of Federal Regulations Title 40 Part 141, it must include the results of monitoring in compliance with Sections 141.142 and 141.143. These results need only be included for five years from the date of the sample or until any of the detected contaminants become regulated and subject to routine monitoring requirements, whichever comes first.

d. Compliance with 567—Chapters 40, 41, 42, and 43. In addition to the requirements of paragraph 42.3(3)*"c"*(1)"9," the report must note any violation that occurred during the year covered by the report of a requirement listed below and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation. Note any violation of the following requirements:

(1) Monitoring and reporting of compliance data pursuant to 567—Chapters 41 and 43, which includes any contaminant with a maximum contaminant level, treatment technique, action level, or health advisory;

(2) Treatment techniques:

1. Filtration and disinfection prescribed by 567—43.5(455B). For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes which constitutes a violation, the report must include the following language as part of the explanation of potential adverse health effects: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

2. Lead and copper control requirements. For systems which fail to take one or more actions prescribed by 567—Chapters 41 to 43 pertaining to lead and copper, the report must include the applicable language of Appendix C to this chapter for lead or copper, or both.

3. Acrylamide and epichlorohydrin control technologies prescribed by 567—subparagraph 41.5(1)*"b"*(3). For systems which violate the requirements of 567—subparagraph 41.5(1)*"b"*(3), the report must include the relevant language from Appendix C to this chapter.

(3) Record keeping of compliance data pursuant to 567—Chapters 40 to 43;

(4) Special monitoring requirements; and

(5) Violation of the terms of operation permit compliance schedule, or an administrative order or judicial order.

e. Operation permit or administrative order with a schedule which extends the time period in which compliance must be achieved. If a system has been issued a compliance schedule with an extension for compliance, the report must contain:

(1) An explanation of the reasons for the extension;

(2) The date on which the extension was issued;

(3) A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms of the compliance schedule; and

(4) A notice of any opportunity for public input in the review or renewal of the compliance schedule.

f. Mandatory report language for explanation of contaminant occurrence. The reports must contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language of the following subparagraphs (1) to (3). Subparagraph (4) is provided as a minimal alternative to subparagraphs (1) to (3). Systems may also develop their own comparable language. The report also must include the language of 42.3(3)*"g."*

(1) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

(2) Contaminants that may be present in source water include:

1. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

2. Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

3. Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm water runoff, and residential uses.

4. Organic chemical contaminants, including synthetic and volatile organics, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

5. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

(3) In order to ensure that tap water is safe to drink, the department prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The United States Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public heath.

(4) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the national Safe Drinking Water Hotline ((800)426-4791).

g. Required additional health information.

(1) All systems. All reports must prominently display the following language: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the national Safe Drinking Water Hotline ((800)426-4791).

(2) Arsenic levels greater than 0.005 mg/L.

1. A system which detects arsenic at levels above 0.005 mg/L and less than or equal to 0.010 mg/L:

- Must include in its report a short information statement about arsenic, using language such as: While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.
- May write its own educational statement, but only in consultation with the department.

2. A community water system that detects arsenic above 0.010 mg/L and less than or equal to 0.05 mg/L must include the arsenic health effects language prescribed by Appendix C to this chapter.

(3) Nitrate levels greater than half the MCL (5.0 mg/L). A system which detects nitrate at levels above 5.0 mg/L, but below the MCL:

1. Must include a short informational statement about the impacts of nitrate on children using language such as: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

2. May write its own education statement, but only in consultation with the department.

(4) Nitrite levels greater than half the MCL (0.50 mg/L). A system which detects nitrite at levels above 0.50 mg/L, but below the MCL:

1. Must include a short informational statement about the impacts of nitrite on children using language such as: Nitrite in drinking water at levels above 1 ppm is a health risk for infants of less than six months of age. High nitrite levels in drinking water can cause blue baby syndrome. If you are caring for an infant you should ask advice from your health care provider.

2. May write its own education statement, but only in consultation with the department.

(5) Lead 95th percentile levels above the action level (0.015 mg/L). Systems which detect lead above the action level in more than 5 percent (95th percentile) and up to and including 10 percent (90th percentile) of homes sampled:

1. Must include a short informational statement about the special impact of lead on children using language such as: Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline ((800)426-4791).

2. May write its own educational statement, but only in consultation with the department.

(6) Total trihalomethane (TTHM) levels above 0.080 mg/L but less than the MCL. Community water systems that detect TTHM above 0.080 mg/L, but below the MCL in 567—subrule 41.5(1), as an annual average, monitored and calculated under the provisions of 567—paragraph 41.5(1)*"e,"* must include the health effects language for total trihalomethanes listed in Appendix C.

h. Additional mandatory report requirements.

(1) The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

(2) In communities with a large proportion of non-English speaking residents, as determined by the department, the report must contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(3) The report must include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

(4) The systems may include such additional information as they deem necessary for the public education consistent with, and not detracting from, the purpose of the report.

42.3(4) *Report delivery.*

a. Required report recipients. Each community water system must mail or otherwise directly deliver one copy of the report to each customer.

(1) The system must make a good-faith effort to reach consumers who do not get water bills, using means recommended by the department. An adequate good-faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good-faith effort to reach consumers would include a mix of methods appropriate to the particular system such as:

1. Posting the reports on the Internet;
2. Mailing to postal patrons in metropolitan areas;
3. Advertising the availability of the report in the news media;
4. Publication in a local newspaper;
5. Posting in public places such as cafeterias or lunchrooms of public buildings;
6. Delivery of multiple copies for distribution by single-billed customers such as apartment buildings or large private employers;
7. Delivery to community organizations.

(2) No later than the date the system is required to distribute the report to its customers, each community water system must mail a copy of the report to the department, followed within three months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department.

(3) No later than the date the system is required to distribute the report to its customers, each community water system must deliver the report to any other agency or clearinghouse identified by the department, such as the Iowa department of public health or county board of health.

b. Availability of report. Each community water system must make its report available to the public upon request. Each community water system serving 100,000 or more persons must post its current year's report to a publicly accessible site on the Internet.

c. Waiver from mailing requirements for systems serving fewer than 10,000 persons. All community public water supply systems with fewer than 10,000 persons served will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)*"a"*(2) to (4) and paragraph 42.3(4)*"b"* still apply to all community public water supply systems. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Systems which use the mailing waiver must:

(1) Publish the reports in one or more local newspapers serving the area in which the system is located;

(2) Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the department; and

(3) Make the reports available to the public upon request.

d. Waiver from mailing requirements for systems serving 500 or fewer in population. All community public water supply systems serving 500 or fewer persons will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Systems serving 500 or fewer persons which use the waiver may forego the requirements of subparagraphs 42.3(4)*"c"*(1) and (2) if they provide notice at least once per year to their customers by mail, door-to-door delivery, or by posting that the report is available upon request, in conspicuous places within the area served by the system acceptable to the department. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)*"a"*(2) to (4) and paragraph 42.3(4)*"b"* still apply to all community public water supply systems.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—42.4(455B) Reporting.

42.4(1) *Reporting requirements other than for lead and copper.*

a. When required by the department, the supplier of water shall report to the department within ten days following a test, measurement or analysis required to be made by 567—Chapter 40, 41, 42, or 43 the results of that test, measurement or analysis in the form and manner prescribed by the department. This shall include reporting of all positive detects within the same specific analytical method.

b. Except where a different reporting period is specified in this rule or 567—Chapters 41 and 43, the supplier of water shall report to the department within 48 hours after any failure to comply with the monitoring requirements set forth in 567—Chapters 41 and 43. The supplier of water shall also notify the department within 48 hours of failure to comply with any primary drinking water regulations.

c. The public water supply system, within ten days of completion of each public notification required pursuant to 567—42.1(455B) for the initial public notice and any repeat notices, shall submit to the department a certification that it has fully complied with the public notification rules. The public water system must include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system or to the media.

42.4(2) *Lead and copper reporting requirements.* All water systems shall report all of the following information to the department in accordance with this subrule.

a. Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring.

(1) Except as provided in 42.4(2)*"a"*(1)"8," a water system shall report the information specified below for all tap water samples specified in 567—paragraph 41.4(1)*"c"* and for all water quality parameter samples specified in 567—paragraph 41.4(1)*"d"* within the first ten days following the end of each applicable monitoring period specified in 567—41.4(455B) (i.e., every six months, annually, or every three years).

1. The results of all tap samples for lead and copper including the location of each site and the criteria under which the site was selected for the system's sampling pool;

2. Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to 567—paragraph 41.4(1)*"c"*(6)"2";

3. Rescinded IAB 1/7/04, effective 2/11/04;

4. The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with 567—subparagraph 41.4(1)*"b"*(3));

5. With the exception of initial tap sampling conducted pursuant to 567—paragraph 41.4(1)*"c"*(4)"1," the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

6. The results of all tap samples for pH and, where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under 567—subparagraphs 41.4(1)*"d"*(2) through (5);

7. The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under 567—subparagraphs 41.4(1)*"d"*(2) and (5); and

8. A water system shall report the results of all water quality parameter samples collected under 567—subparagraphs 41.4(1)*"d"*(3) through (6) during each six-month monitoring period specified in 567—subparagraph 41.4(1)*"d"*(4) within the first ten days following the end of the monitoring period, unless the department has specified a more frequent reporting requirement.

(2) Certain systems that do not have enough taps that can provide first-draw samples that have met the six-hour stand time criteria, such as an NTNC that has 24-hour operation or a CWS that meets the criteria of 42.2(4)*"g"*(1) and (2), must either:

1. In the case where the department has not approved the non-first-draw sample sites, provide written documentation to the department identifying stand times and locations for enough non-first-draw samples to make up its sampling pool under 567—paragraph 41.4(1)*"c"*(2)"5" by July 1, 2003; or

2. If the department has already approved the non-first-draw sample sites selected by the system, identify each site that did not meet the six-hour minimum stand time and the length of stand time for that particular substitute sample collected pursuant to 567—paragraph 41.4(1)*"c"*(2)"5." Certain systems include this information in writing with the lead and copper tap sample results required to be submitted pursuant to 567—paragraph 41.4(1)*"d"*(1)"1."

(3) No later than 60 days after the addition of a new source or any change in water treatment, unless the department specifies earlier notification, a water system that has optimized corrosion control under 567—subparagraph 43.7(1)*"b"*(3), a water system subject to reduced monitoring pursuant to 567—paragraph 41.4(1)*"c"*(4)"4," or a water system subject to a monitoring waiver pursuant to 567—subparagraph 41.4(1)*"c"*(7), shall send written documentation to the department describing the change. In those instances where prior department approval of the treatment change or new source is not required, water systems are encouraged to provide the notification to the department beforehand to minimize the risk that the treatment change or new source will adversely affect optimal corrosion control.

(4) Any small system applying for a monitoring waiver under 567—subparagraph 41.4(1)*"c"*(7), or subject to a waiver granted pursuant to 567—paragraph 41.4(1)*"c"*(7)"3," shall provide the following information to the department in writing by the specified deadline:

1. By the start of the first applicable monitoring period in 567—subparagraph 41.4(1)*"c"*(4), any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of 567—paragraphs 41.4(1)*"c"*(7)"1" and "2."

2. No later than nine years after the monitoring previously conducted pursuant to 567—paragraph 41.4(1)*"c"*(7)"2" or 567—paragraph 41.4(1)*"c"*(7)"4," first bulleted paragraph, each small system desiring to maintain its monitoring waiver shall provide the information required by 567—paragraph 41.4(1)*"c"*(7)"4," first and second bulleted paragraphs.

3. No later than 60 days after the system becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, each small system with a monitoring waiver shall provide written notification to the department, setting forth the circumstances resulting in the lead-containing or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(5) Each groundwater system that limits water quality parameter monitoring to a subset of entry points under 567—paragraph 41.4(1)*"d"*(3)"3" shall provide, by the commencement of such monitoring, written correspondence to the department that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

b. Source water monitoring reporting requirements.

(1) A water system shall report the sampling results for all source water samples collected in accordance with 567—paragraph 41.4(1)*"e"* within the first ten days following the end of each source water monitoring period (i.e., annually, per compliance period or per compliance cycle) specified in 567—paragraph 41.4(1)*"e."*

(2) With the exception of the first round of source water sampling conducted pursuant to 567—subparagraph 41.4(1)*"e"*(2), the system shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed.

c. Corrosion control treatment reporting requirements. By the applicable dates under 567—subrule 43.7(1), systems shall report the following information:

(1) For systems demonstrating that they have already optimized corrosion control, information required in 567—subparagraph 43.7(1)*"b"*(2) or (3).

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under 567—paragraph 43.7(2)*"a."*

(3) For systems required to evaluate the effectiveness of corrosion control treatments under 567—paragraph 43.7(2)*"c,"* the information required by that paragraph.

(4) For systems required to install optimal corrosion control designated by the department under 567—paragraph 43.7(2)*"d,"* a letter certifying that the system has completed installing that treatment.

d. Source water treatment reporting requirements. By the applicable dates in 567—subparagraph 43.7(3)*"b"*(1), systems shall provide the following information to the department:

(1) If required under 567—subparagraph 43.7(3)*"b"*(1), their recommendation regarding source water treatment;

(2) For systems required to install source water treatment under 567—subparagraph 43.7(3)*"b"*(1), a letter certifying that the system has completed installing the treatment designated by this department within 24 months after the department designated the treatment.

e. Lead service line replacement reporting requirements. Systems shall report the following information to demonstrate compliance with the requirements of 567—subrule 43.7(4):

(1) Within 12 months after a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)*"a,"* the system shall demonstrate in writing to the department that it has conducted a materials evaluation, including the evaluation pursuant to 567—subparagraph 41.4(1)*"c"*(1) to identify the initial number of lead service lines in its distribution system, and shall provide the department with the system's schedule for replacing annually at least 7 percent of the initial number of lead service lines in its distribution system.

(2) Within 12 months after a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)*"a"* and every 12 months thereafter, the system shall demonstrate in writing that the system has either:

1. Replaced in the previous 12 months at least 7 percent of the initial lead service lines (or a greater number of lines specified by the department under 567—paragraph 43.7(4)*"e"* in its distribution system), or

2. Conducted sampling which demonstrates that the lead concentration in all service line samples from individual line(s), taken pursuant to 567—paragraph 41.4(1)*"c"*(2)"3," is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced and those lines which meet the criteria in 567—paragraph 43.7(4)*"c"* shall equal at least 7 percent of the initial number of lead lines identified under 567—paragraph 43.7(4)*"b"* or the percentage specified by the department under 567—paragraph 43.7(4)*"e."* A lead service line meeting the criteria of 567—paragraph 43.7(4)*"c"* may only be used to comply with the 7 percent criteria for a specific year, and may not be used again to calculate compliance with the 7 percent criteria in future years.

(3) The annual letter submitted to the department under 42.4(2)*"e"*(2) shall contain the following information:

1. The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule;

2. The number and location of each lead service line replaced during the previous year of the system's replacement schedule;

3. If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.

(4) Any system which collects lead service line samples following partial lead service line replacement required by 567—subrule 43.7(4) shall report the results to the department within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the department. Systems shall also report any additional information as specified by the department, and in a time and manner prescribed by the department, to verify that all partial lead service line replacement activities have taken place.

f. Public education program reporting requirements.

(1) Any water system that is subject to the public education requirements in 567—42.2(455B) shall, within ten days after the end of each period in which the system is required to perform public education tasks in accordance within 42.2(4), send written documentation to the department that contains:

1. A demonstration that the system has delivered the public education materials that meet the content requirements in 42.2(2) and 42.2(3) and the delivery requirements in 42.2(4); and

2. A list of all the newspapers, radio stations, television stations, facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(2) Unless required by the department, a system that previously has submitted the information required by 42.4(2)*"f"*(1)"2" need not resubmit the same information, provided there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list previously submitted. The certification is due within ten days after the end of each period in which the system is required to perform public education.

g. Reporting of additional monitoring data. A system which collects sampling data in addition to that required by 567—Chapters 41 and 43 shall report the results to the department within the first ten days following the end of the applicable monitoring period under 567—paragraphs 41.4(1)*"c," "d,"* and *"e"* during which the samples are collected.

42.4(3) *Operation and maintenance for PWS.*

a. Required records of operation.

(1) Applicability. Monthly records of operation shall be completed by all public water supplies, on forms provided by the department or on similar forms, unless a public water supply meets all of the following conditions:

1. Supplies an annual average of not more than 25,000 gpd or serves no more than an average of 250 individuals daily;

2. Is a community public water supply and does not provide any type of treatment, or is a noncommunity system (NTNC and TNC) which has only a cation-exchange softening or iron/manganese removal treatment unit, and meets the requirements of 42.4(3)*"a"*(2)"7";

3. Does not utilize either a surface water or a groundwater under the direct influence of surface water either in whole or in part as a water source.

4. Does not use a treatment technique such as blending to achieve compliance with a maximum contaminant level, treatment technique, action level, or health advisory.

The reports shall be completed as described in 42.4(3)*"a"*(2) and maintained at the facility for inspection by the department for a period of five years. For CWS and NTNC PWSs, the monthly operation report must be signed by the certified operator in charge. For TNC PWSs, the monthly operation report, if required by the department, must be signed by the owner or the owner's designee.

All public water supplies using a surface water or influenced groundwater source must also comply with the applicable record-keeping requirements in 567—43.5(455B), 567—43.9(455B), and 567—43.10(455B).

(2) Contents. Monthly operation reports shall be completed as follows:

1. Pumpage or flow. Noncommunity supplies shall measure and record the total water used each week. It is recommended that a daily measurement and recording be made. Community supplies shall

measure and record daily water used. Reporting of pumpage or flow may be required in an operation permit where needed to verify MCL compliance.

2. Treatment effectiveness. Where treatment is practiced, the intended effect of the treatment shall be measured at locations and by methods which best indicate effectiveness of the treatment process. These measurements shall be made pursuant to Appendix B of this chapter. Daily monitoring is seven days a week unless otherwise specified by the department.

3. Treatment effectiveness for a primary standard. Where the raw water quality does not meet the requirements of 567—Chapters 41 and 43 and treatment is practiced for the purpose of complying with a maximum contaminant level, action level, health advisory, or treatment technique criteria, daily measurement of the primary standard constituent or an appropriate indicator constituent designated by the department shall be recorded. The department will require reporting of these results in the operation permit to verify MCL compliance.

4. Treatment effectiveness for a secondary standard. Where treatment is practiced for the purpose of achieving the recommended level of any constituent designated in the federal secondary standards, measurements shall be measured and recorded at a frequency specified in Appendix B. Daily monitoring is seven days a week unless otherwise specified by the department.

5. Chemical application. Chemicals such as fluoride, iodine, bromine and chlorine, which are potentially toxic in excessive concentration, shall be measured and recorded daily. Recording shall include the amount of chemical applied each day. Where the supplier of water is attempting to maintain a residual of the chemical throughout the system, such as chlorine, the residual in the system shall be recorded daily. The quantity of all other chemicals applied shall be measured and recorded at least once each week.

6. Static water levels and pumping water levels must be measured and recorded once per month for all groundwater sources. More or less frequent measurements may be approved by the department where historical data justifies it.

7. Noncommunity systems (NTNC and TNC) are exempt from the self-monitoring requirements for cation-exchange softening and iron/manganese removal if the treatment unit:

- Is a commercially available “off-the-shelf” unit designed for home use;
- Is self-contained, requiring only a piping connection for installation;
- Operates throughout a range of 35 to 80 psi; and
- Has not been installed for the purpose of removing a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory.

b. Chemical quality and application. Any drinking water system chemical which is added to raw, partially treated, or finished water must be suitable for the intended use in a potable water system. Effective on October 1, 2000, the chemical must be certified to meet the current American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60, if such certification exists for the particular product, unless certified chemicals are not reasonably available for use, in accordance with guidelines provided by the department. If the chemical is not certified by the ANSI/NSF Standard 60 or no certification is available, the person seeking to supply or use the chemical must prove to the satisfaction of the department that the chemical is not toxic or otherwise a potential hazard in a potable public water supply system.

The supplier of water shall keep a record of all chemicals used. This record should include a clear identification of the chemical by brand or generic name and the dosage rate. When chemical treatment is applied with the intent of obtaining an in-system residual, the residuals will be monitored regularly. When chemical treatment is applied and in-system residuals are not expected, the effectiveness of the treatment will be monitored through an appropriate indicative parameter.

(1) Continuous disinfection.

1. When required. Continuous disinfection must be provided at all public water supply systems, except for the following: groundwater supplies that have no treatment facilities or have only fluoride, sodium hydroxide or soda ash addition and that meet the bacterial standards as provided in 567—41.2(455B) and do not show other actual or potential hazardous contamination by microorganisms.

2. Method. Chlorine is the preferred disinfecting agent. Chlorination may be accomplished with liquid chlorine, calcium or sodium hypochlorites or chlorine dioxide. Other disinfecting agents will be considered, provided a residual can be maintained in the distribution system, reliable application equipment is available and testing procedures for a residual are recognized in Standard Methods for the Analysis of Water and Wastewater.

3. Chlorine residual. A minimum free available chlorine residual of 0.3 mg/L or a minimum total available chlorine residual of 1.5 mg/L must be continuously maintained throughout the water distribution system, except for those points in the distribution system that terminate as dead ends or areas that represent very low use when compared to usage throughout the rest of the distribution system as determined by the department.

4. Test kit. A test kit capable of measuring free and combined chlorine residuals in increments no greater than 0.1 mg/L in the range below 0.5 mg/L, and in increments no greater than 0.2 mg/L in the range from 0.5 mg/L to 1.0 mg/L, and in increments no greater than 0.3 mg/L in the range from 1.0 mg/L to 2.0 mg/L must be provided at all chlorination facilities. The test kit must use a method of analysis that is recognized in Standard Methods for the Examination of Water and Wastewater.

5. Leak detection, control and operator protection. A bottle of at least 56 percent ammonium hydroxide must be provided at all gas chlorination installations for leak detection. Leak repair kits must be available where ton chlorine cylinders are used.

6. Other disinfectant residuals. If an alternative disinfecting agent is approved by this department, the residual levels and type of test kit used will be assigned by the department in accordance with and based upon analytical methods contained in Standard Methods for the Examination of Water and Wastewater.

(2) Phosphate compounds.

1. When phosphate compounds are to be added to any public water supply system which includes iron or manganese removal or ion-exchange softening, such compounds must be applied after the iron or manganese removal or ion-exchange softening treatment units, unless the director has received and approved an engineering report demonstrating the suitability for addition prior to these units in accordance with the provisions of 567—subrule 43.3(2). The department may require the discontinuance of phosphate addition where it interferes with other treatment processes, the operation of the water system or if there is a significant increase in microorganism populations associated with phosphate application.

2. The total phosphate concentration in the finished water must not exceed 10 mg/L as PO_4.

3. Chlorine shall be applied to the phosphate solution in sufficient quantity to give an initial concentration of 10 mg/L in the phosphate solution. A chlorine residual must be maintained in the phosphate solution at all times.

4. Test kits capable of measuring polyphosphate and orthophosphate in a range from 0.0 to 10.0 mg/L in increments no greater than 0.1 mg/L must be provided.

5. Continuous application or injection of phosphate compounds directly into a well is prohibited.

(3) Fluorosilicic acid. Where fluorosilicic acid (H_2SiF_6, also called hydrofluosilicic acid) is added to a public water supply, the operator shall be equipped with a fluoride test kit with a minimum range of from 0.0 to 2.0 mg/L in increments no greater than 0.1 mg/L. Distilled water and standard fluoride solutions of 0.2 mg/L and 1.0 mg/L must be provided.

c. Reporting and record-keeping requirements for systems using surface water and groundwater under the direct influence of surface water. In addition to the monitoring requirements required by 42.4(3)*"a"* and *"b,"* a public water system that uses a surface water source or a groundwater source under the direct influence of surface water must report monthly to the department the information specified in this subrule beginning June 29, 1993, or when filtration is installed, whichever is later.

(1) Turbidity measurements as required by 567—subrule 43.5(3) must be reported within ten days after the end of each month the system serves water to the public. Information that must be reported includes:

1. The total number of filtered water turbidity measurements taken during the month.

2. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 567—paragraphs 43.5(3)*"b"* through *"e"* for the filtration technology being used.

3. The date and value of any turbidity measurements taken during the month which exceed 5 NTU. If at any time the turbidity exceeds 5 NTU, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements in 42.1(2). This requirement is in addition to the monthly reporting requirement, pursuant to 567—43.5(455B).

(2) Disinfection information specified in 567—subrule 43.5(2) and paragraph 42.4(3)*"b"* must be reported to the department within ten days after the end of each month the system serves water to the public. Information that must be reported includes:

1. For each day, the lowest measurement of residual disinfectant concentration in mg/L in water entering the distribution system.

2. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine and when the department was notified of the occurrence.

If at any time the residual falls below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine in the water entering the distribution system, the system must notify the department as soon as possible, but no later than by the end of the next business day. The system also must notify the department by the end of the next business day whether or not the residual was restored to at least 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine within four hours. This requirement is in addition to the monthly reporting requirement, pursuant to 567—43.5(455B).

3. The information on the samples taken in the distribution system in conjunction with total coliform monitoring listed in 567—paragraph 43.5(2)*"d"* and pursuant to 567—paragraph 41.2(1)*"c."*

d. Reporting and record-keeping requirements for disinfection byproducts, disinfectants, and disinfection byproduct precursors.

(1) General requirements.

1. In addition to the monitoring requirements required by 42.4(3)*"a"* and *"b,"* a CWS or NTNC public water system that adds a chemical disinfectant to the water in any part of the drinking water treatment process or which provides water that contains a chemical disinfectant must report monthly to the department the information specified in this paragraph by the dates listed in 567—subparagraphs 41.6(1)*"a"*(3) and 43.6(1)*"a"*(3). A TNC public water system which adds chlorine dioxide as a disinfectant or oxidant must report monthly to the department the information specified in this paragraph by the dates listed in 567—paragraph 43.6(1)*"a"*(3)"3."

2. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected.

(2) Disinfection byproducts. Systems must report the information specified in the following table:

Disinfection Byproducts Reporting Table

If you are a ...	You must report ...
System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)*"c"*(4) on a quarterly or more frequent basis	1. The number of samples taken during the last quarter. 2. The location, date, and result of each sample taken during the last quarter. 3. The arithmetic average of all samples taken in the last quarter. 4. The annual arithmetic average of the quarterly arithmetic averages for the last four quarters.* 5. Whether the MCL was exceeded. 6. Under Stage 2, any operational evaluation levels that were exceeded during the quarter, including the location and date and the calculated TTHM and HAA5 levels.

If you are a ...	You must report ...
System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)*"c"*(4) less frequently than quarterly, but at least annually	1. The number of samples taken during the last year. 2. The location, date, and result of each sample taken during the last monitoring period. 3. The arithmetic average of all samples taken over the last year.* 4. Whether the MCL was exceeded.
System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)*"c"*(4) less frequently than annually	1. The location, date, and result of the last sample taken. 2. Whether the MCL was exceeded.
System monitoring for chlorite under the requirements of 567—subparagraph 41.6(1)*"c"*(3)	1. The number of samples taken each month for the last 3 months. 2. The location, date, and result of each sample taken during the last quarter. 3. For each month in the reporting period, the arithmetic average of all samples taken in each three sample set taken in the month. 4. Whether the MCL was exceeded, and in which month it was exceeded.
System monitoring for bromate under the requirements of 567—subparagraph 41.6(1)*"c"*(2)	1. The number of samples taken during the last quarter. 2. The location, date, and result of each sample taken during the last quarter. 3. The arithmetic average of the monthly arithmetic averages of all samples taken in the last year. 4. Whether the MCL was exceeded.

The calculation of the running annual average will transition from a system-wide RAA calculation under Stage 1 to a locational running annual average (LRAA) under Stage 2. The transition will commence according to the system schedule listed in 567—paragraph 41.6(1)"b."* Beginning at the end of the fourth calendar quarter that follows the compliance date, and at the end of each subsequent quarter, the system must report the arithmetic average of quarterly results for the last four quarters of each monitoring location. If the calculated LRAA based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system must report this information to the department no later than the due date of the next compliance report.

(3) Disinfectants. In addition to the requirements in 567—subparagraph 41.2(1)*"c"*(2), systems must report the information specified in the following table:

Disinfectants Reporting Table

If you are a ...	You must report ...
System monitoring for chlorine or chloramines under the requirements of 567—paragraph 43.6(1)*"c"*(1)"2"	1. The number of samples taken during each month of the last quarter. 2. The monthly arithmetic average of all samples taken in each month for the last 12 months. 3. The arithmetic average of all monthly averages for the last 12 months. 4. Whether the MRDL was exceeded.
System monitoring for chlorine dioxide under the requirements of 567—paragraph 43.6(1)*"c"*(1)"3"	1. The dates, results, and locations of samples taken during the last quarter. 2. Whether the MRDL was exceeded. 3. Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

(4) Disinfection byproduct precursors and enhanced coagulation or enhanced softening. Systems must report the information specified in the following table:

Disinfection Byproduct Precursors and Enhanced Coagulation or Enhanced Softening Reporting Table

If you are a ...	You must report ...
System monitoring monthly or quarterly for TOC under the requirements of 567—subparagraph 43.6(1)*"c"*(2) and required to meet the enhanced coagulation or enhanced softening requirements in 567—subparagraph 43.6(3)*"b"*(2) or (3)	1. The number of paired (source water and treated water, prior to continuous disinfection) samples taken during the last quarter. 2. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. 3. For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. 4. Calculations for determining compliance with the TOC percent removal requirements, as provided in 567—subparagraph 43.6(3)*"c"*(1). 5. Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in 567—paragraph 43.6(3)*"b"* for the last four quarters.
System monitoring monthly or quarterly for TOC under the requirements of 567—subparagraph 43.6(1)*"c"*(2) and meeting one or more of the alternative compliance criteria in 567—subparagraph 43.6(3)*"a"*(2) or (3)	1. The alternative compliance criterion that the system is using. 2. The number of paired samples taken during the last quarter. 3. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. 4. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in 567—paragraph 43.6(3)*"a"*(2)"1" or "3" or of treated water TOC for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"2." 5. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"5" or of treated water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"6." 6. The running annual average of source water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"3" and of treated water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(3)"1." 7. The running annual average for both TTHM and HAA5 for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"3" or "4." 8. The running annual average for the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(3)"2." Whether the system is in compliance with the particular alternative compliance criterion in 567—subparagraph 43.6(3)*"a"*(2) or (3).
SW/IGW system on reduced monitoring for TTHM/HAA5 under the requirements of 567—paragraph 41.6(3)*"d"*	For each treatment plant that treats surface or IGW source water, report the following: 1. The number of source water TOC samples taken each month during the last quarter. 2. The date and result of each sample taken during the last quarter. 3. The quarterly average of monthly samples taken during the last quarter or the result of the quarterly sample. 4. The running annual average (RAA) of quarterly averages from the past four quarters. 5. Whether the TOC RAA exceeded 4.0 mg/L.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—42.5(455B) Record maintenance.

42.5(1) *Record maintenance requirements.* Any owner or operator of a public water system subject to the provisions of this rule shall retain on its premises or at a convenient location near its premises the following records:

a. Analytical records.

(1) Actual laboratory reports shall be kept, or data may be transferred to tabular summaries, provided that the following information is included:

1. The date, place, and time of sampling, and the name of the person who collected the sample;

2. Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample;

3. Date of analysis;

4. Laboratory and person responsible for performing analysis;

5. The analytical technique or method used; and

6. The results of the analysis.

(2) Record retention for specific analytes.

1. Microbiological and turbidity: Records of microbiological analyses and turbidity analyses made pursuant to 567—Chapters 41 and 43 shall be kept for not less than five years.

2. Chemical: radionuclide, inorganic compounds, organic compounds. Records of chemical analyses made pursuant to 567—Chapter 41 shall be kept for not less than ten years. Additional lead and copper requirements are listed in 42.5(1)*"b."*

b. Lead and copper record-keeping requirements. A system subject to the requirements of 42.4(2) shall retain on its premises original records of all data and analyses, reports, surveys, public education, letters, evaluations, schedules, and any other information required by 567—41.4(455B) and 567—Chapter 43. Each water system shall retain the records required by this subrule for 12 years.

c. Records of action (violation correction). Records of action taken by the system to correct violations of primary drinking water regulations (including administrative orders) shall be kept for not less than five years after the last action taken with respect to the particular violation involved.

d. Reports and correspondence relating to sanitary surveys. Copies of any written reports, summaries, or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, state or federal agency, shall be kept for a period of not less than ten years after completion of the sanitary survey involved.

e. Operation or construction permits. Records concerning an operation or a construction permit issued pursuant to 567—Chapter 43 to the system shall be kept for a period ending not less than ten years after the system achieves compliance with the maximum contaminant level, treatment technique, action level, or health advisory, or after the system in question completes the associated construction project.

f. Public notification. Records of public notification, including the Consumer Confidence Report, public notification examples, and public notice certifications, must be kept for at least five years.

g. Self-monitoring requirement records. The monthly records of operation must be completed as described in 42.4(3)*"a"*(2) and maintained at the facility for inspection by the department for a period of at least five years. All data generated at the facility to comply with the self-monitoring requirements must be retained for a period of at least five years, and must be maintained at the facility for inspection by the department. The data shall be in a form that allows easy retrieval and interpretation. Examples of data that must be retained include, but are not limited to, recorder charts, logbooks, bench sheets, SCADA records, and electronic files.

h. Monitoring plans. Copies of monitoring plans developed pursuant to 567—Chapters 41, 42, and 43 shall be kept for the same period of time as the records of analyses taken under the plans are required to be kept, unless otherwise specified.

42.5(2) Reserved.

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These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

APPENDIX A:
STANDARD HEALTH EFFECTS LANGUAGE FOR PUBLIC NOTIFICATION

Contaminant	Standard Health Effects Language
Microbiological Contaminants	
Total coliform	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, more potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Fecal coliform or *E. coli*	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Surface Water Treatment Technique Requirements	
Turbidity	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.
Surface water/IGW system treatment technique requirements: CT ratio; residual disinfectant; log removal/inactivation of *Giardia*, viruses, and *Cryptosporidium*; or filter backwash recycling	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.
Inorganic Chemical Contaminants	
Antimony	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
Arsenic	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Asbestos	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Beryllium	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
Cadmium	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
Chromium, total	Some people who drink water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Copper	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Cyanide	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
Fluoride	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water above 2.0 mg/L may cause mottling of children's teeth, usually in children less than nine years of age. Mottling, also known as dental fluorosis, may include brown staining and pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

Contaminant	Standard Health Effects Language
Lead	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Mercury, inorganic	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
Nitrate	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Nitrite	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Total Nitrate and Nitrite	Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Selenium	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience loss of hair or fingernails, numbness in fingers or toes, or problems with their circulation.
Thallium	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
Synthetic Organic Chemical Contaminants	
2,4-D	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5-TP (Silvex)	Some people who drink water containing Silvex in excess of the MCL over many years could experience liver problems.
Alachlor	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or have reproductive difficulties.
Benzo(a)pyrene (PAHs)	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
Chlordane	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
Dalapon	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
Di(2-ethylhexyl)adipate	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties.
Di(2-ethylhexyl)-phthalate	Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloropropane (DBCP)	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

Contaminant	Standard Health Effects Language
Dinoseb	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Dioxin (2,3,7,8-TCDD)	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Diquat	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
Endothall	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
Ethylene dibromide	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
Glyphosate	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
Heptachlor	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachloro-cyclopentadiene	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
Lindane	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
Methoxychlor	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
Oxamyl (Vydate)	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
Pentachlorophenol	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
Picloram	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Polychlorinated byphenyls (PCBs)	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
Simazine	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene	Some people who drink water containing toxaphene in excess of the MCL over many years could experience problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile Organic Chemical Contaminants (VOCs)	
Benzene	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.

Contaminant	Standard Health Effects Language
Carbon tetrachloride	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Chlorobenzene (monochlorobenzene)	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
o-Dichlorobenzene	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory system.
p-Dichlorobenzene	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
1,2-Dichloroethane	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
cis-1,2-Dichloroethylene	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
trans-1,2-Dichloroethylene	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
Styrene	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
Tetrachloroethylene	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
Toluene	Some people who drink water containing toluene in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
1,2,4-Trichlorobenzene	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1-Trichloroethane	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
1,1,2-Trichloroethane	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune system.
Trichloroethylene	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Vinyl chloride	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylene (total)	Some people who drink water containing total xylene in excess of the MCL over many years could experience damage to their nervous system.
Radionuclide Contaminants	
Alpha emitters	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant	Standard Health Effects Language
Beta/photon emitters	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined radium (226 & 228)	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
Disinfection Byproducts	
Bromate	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
Chlorite	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Haloacetic Acids (HAA)	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Total Trihalomethanes (TTHMs)	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
Residual Disinfectants	
Chloramines	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chlorine dioxide—acute (one or more distribution samples exceed the MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today include exceedances of the standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.
Chlorine dioxide—non-acute (two consecutive daily samples taken at the source entry point to the distribution system are above the MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.
Disinfection Byproduct Precursors	
Total Organic Carbon (TOC)	Total organic carbon has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Contaminant	Standard Health Effects Language
Other Treatment Techniques	
Acrylamide	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
Epichlorohydrin	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

APPENDIX B:
MINIMUM SELF-MONITORING REQUIREMENTS (SMR)

I. Minimum Self-Monitoring Requirements for TNCs (excluding surface water or influenced groundwater PWSs)

Notes:

- The self-monitoring requirements (SMRs) only apply to those supplies meeting the required operation records applicability criteria in 42.4(3)*"a"*(1).
- TNCs are exempt from the self-monitoring requirements for point-of-use treatment devices, unless the device is used to remove a contaminant which has a maximum contaminant level or treatment technique, in which case additional SMRs will be assigned by the department.
- Daily monitoring for TNCs applies only when the facility is in operation.
- Additional or more frequent monitoring requirements may be assigned by the department in the operation permit.
- Additional SMRs are required if treatment is used to remove a regulated contaminant. See Section II for the requirements under the specific treatment type.

General Requirements

All TNCs which meet the required operation records applicability criteria in 42.4(3)*"a"*(1) must measure the following parameters, where applicable. Additional SMRs are required if treatment is used to remove a contaminant which has a maximum contaminant level or treatment technique. See Section II for the requirements under the specific treatment type.

	PWS Type:	TNC*
Parameter	Sample Site	Frequency
Pumpage (Flow)	raw: final:	1/week 1/week
Disinfectant Residual***	final: distribution system**:	1/day 1/day
Disinfectant, quantity used	day tank/scale:	1/day
Static Water and Pumping Water Levels (Drawdown)	each active well:	1/month

*TNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department in specific PWSs.

**Monitoring is to be conducted at representative points in the distribution system which adequately demonstrate compliance with 42.4(3)*"b"*(1).

***The department may reduce the required sample site locations for a system with a minimal distribution system and only hydropneumatic tank storage.

II. Minimum Self-Monitoring Requirements for CWS, NTNC, and IGW/SW TNC

Notes:

- The self-monitoring requirements (SMR) only apply to those supplies meeting the required operation records applicability criteria in 42.4(3)*"a"*(1).
- NTNCs are exempt from the self-monitoring requirements for point-of-use treatment devices, unless the device is used to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory, in which case additional SMRs will be assigned by the department.
- Daily monitoring for NTNCs applies only when the facility is in operation.
- These are the minimum self-monitoring requirements. Additional or more frequent monitoring requirements may be assigned by the department in the operation permit.

A. General Requirements

All PWSs which meet the required operation records applicability criteria in 42.4(3)*"a"*(1) must measure the following parameters, where applicable:

	PWS Type:	NTNC* & IGW/SW TNC	CWS
Parameter	Sample Site	Frequency	Frequency
Pumpage (Flow)	raw: bypass: final:	1/week 1/week 1/week	1/day 1/day 1/day
Static Water and Pumping Water Levels (Drawdown)	each active well:	1/month	1/month

*NTNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department in specific PWSs.

B. Chemical Addition

All PWSs which apply chemicals in the treatment process must monitor the following parameters, for the applicable processes:

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
DISINFECTION				
Disinfectant Residual**	final: distribution system*:	1/day 1/day	1/day 1/day	1/day 1/day
Disinfectant, quantity used	day tank/scale:	1/day	1/day	1/day
FLUORIDATION				
Fluoride	raw: final:	1/quarter 1/day	1/month 1/day	1/month 1/day
Fluoride, quantity used	day tank/scale:	1/day	1/day	1/day
pH ADJUSTMENT				
pH	final:	1/week	2/week	1/day
Caustic Soda, quantity used	day tank/scale:	1/week	1/week	1/week
PHOSPHATE ADDITION				
Phosphate, as PO_4	final:	1/week	2/week	1/day
Phosphate, quantity used	day tank/scale:	1/week	1/week	1/week
OTHER CHEMICALS				
Chemical	final:	1/week	2/week	1/day
Chemical, quantity used	day tank/scale:	1/week	1/week	1/week

Monitoring is to be conducted at representative points in the distribution system which adequately demonstrate compliance with 42.4(3)"b"*(1).

**The department may reduce the required sample site locations for a system with a minimal distribution system, only hydropneumatic tank storage, and, if a CWS, it serves less than 100 persons.

C. Iron or Manganese Removal

Nonmunicipalities except rural water systems, benefited water districts, and publicly owned PWSs are exempt from monitoring of iron/manganese removal equipment unless the treatment is or was installed to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory. Any chemicals which are applied during the treatment process must be measured under section "B. Chemical Addition" of this table.

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
Iron	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
Manganese	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day

D. pH Adjustment for Iron and Manganese Removal, by precipitation and coagulation processes utilizing lime, soda ash, or other chemical additions. Testing is only required if a specific chemical is added.

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
Alkalinity	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
Iron	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
Manganese	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
pH	raw: final:	1/week 1/week	1/week 2/week	1/week 1/day

E. Cation Exchange (Zeolite) Softening

Nonmunicipalities except for rural water systems and benefited water districts are exempt from the monitoring of water quality parameters associated with ion-exchange softening unless the treatment is or was installed to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory. An annual sodium sample of the final water is required of all community systems that use cation exchange softening, and will also meet the special sodium monitoring requirement of 567—paragraph 41.11(1)*"f."*

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
Hardness as $CaCO_3$	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
pH	final:	1/week	2/week	1/day
Sodium*	final:	1/year	1/year	1/year

The annual sodium sample required in 567—paragraph 41.11(1)"f"* will satisfy this requirement.

F. Direct Filtration of Surface Waters or Influenced Groundwaters

	Pumpage or Flow:	All
Parameter	Sample Site	Frequency
CT Ratio	final:	1/day
Disinfectant Residual*	source/entry point: distribution system*:	continuous daily
Disinfectant, quantity used	day tank/scale:	1/day
pH	final:	1/day
Temperature	raw:	1/day
Turbidity	raw: final:	see 567—subrules 43.5(3) and 43.5(4), and 567—43.9(455B) for the specific requirements

Monitoring is to be conducted to demonstrate compliance with paragraph 42.4(3)"b,"* 567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B).

G. Clarification or Lime Softening of Surface Waters or Influenced Groundwaters

	Pumpage or Flow:	All
Parameter	Sample Site	Frequency
Alkalinity	raw: final:	1/day 1/day
Caustic Soda, quantity used	day tank/scale:	1/week
CT Ratio	final:	1/day
Disinfectant Residual*	source/entry point: distribution system*:	continuous daily
Disinfectant, quantity used	day tank/scale:	1/day
Hardness as $CaCO_3$	raw: final:	1/day 1/day
Odor	raw: final:	1/week 1/day
pH	raw: final:	1/day 1/day
Temperature	raw:	1/day
Turbidity	raw: final:	see 567—subrules 43.5(3) and 43.5(4), and 567—43.9(455B) for the specific requirements

Monitoring is to be conducted to demonstrate compliance with paragraph 42.4(3)"b,"*567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B).

H. Lime Softening of Groundwaters (excluding IGW)

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Alkalinity	raw: final:	1/quarter 1/day	1/month 1/day
Hardness as $CaCO_3$	raw: final:	1/quarter 1/day	1/month 1/day
pH	raw: final:	1/week 1/day	1/week 1/day
Temperature	raw:	1/week	1/week

I. Reverse Osmosis or Electrodialysis

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Alkalinity	raw: final:	1/quarter 1/day	1/month 1/day
Hardness as $CaCO_3$	raw: final:	1/quarter 1/day	1/month 1/day
Iron	raw:	1/day	1/day
Manganese	raw:	1/day	1/day
pH	raw: final:	1/week 1/day	1/week 1/day
Total Dissolved Solids	raw:	1/month	1/month

J. Anion Exchange (i.e., Nitrate Reduction)

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Nitrate	raw: final:	1/day 1/day	1/day 1/day
Sulfate	raw: final:	1/week 1/week	1/week 1/week

K. Activated Carbon for TTHM, VOC, or SOC Removal (GAC or PAC)

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Total Organic Carbon (TOC)	final:	1/quarter	1/month

L. Air-Stripping for TTHM, VOC, or SOC Removal

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Total Organic Carbon (TOC)	final:	1/quarter	1/month

M. Lead and Copper: Corrosion Control and Water Quality Parameters

The specific SMRs for corrosion control and water quality parameters are listed in 567—paragraph 41.4(1)*"d"* and 567—subrules 43.8(1) and 43.8(2).

N. Consecutive PWSs Supplied by a Surface Water or IGW PWS

	Pumpage or Flow:	All
Parameter	Sample Site	Frequency
Disinfectant Residual	source/entry point: distribution system*:	1/day 1/day
Disinfectant, quantity used (if applicable)	day tank/scale:	1/day
Pumpage or Flow	master meter:	1/day

*Monitoring is to be conducted at representative points in the distribution system.

APPENDIX C:
REGULATED CONTAMINANTS TABLE FOR CONSUMER CONFIDENCE REPORT

Key	
AL	Action Level
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MFL	million fibers per liter
MRDL	Maximum Residual Disinfectant Level
MRDLG	Maximum Residual Disinfectant Level Goal
mrem/year	millirems per year (a measure of radiation absorbed by the body)
n/a	not applicable
NTU	nephelometric turbidity units (a measure of water clarity)
pCi/L	picocuries per liter (a measure of radioactivity)
ppb	parts per billion, or micrograms per liter (μg/L)
ppm	parts per million, or milligrams per liter (mg/L)
ppq	parts per quadrillion, or picograms per liter (pg/L)
ppt	parts per trillion, or nanograms per liter (ng/L)
TT	Treatment Technique

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Bacteria						
Total coliform bacteria	(footnote 1)		(footnote 1)	0	Naturally present in the environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Fecal coliform and *E. coli*	0		0	0	Human and animal fecal waste	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Disinfection Byproduct Precursor Removal Requirements for Surface & Influenced Groundwater Systems						
Total organic carbon (ppm)	TT		TT	n/a	Naturally present in the environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
Surface Water & Influenced Groundwater System Treatment Requirements						
Turbidity (NTU)	TT		TT	n/a	Soil runoff	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.
Surface water/IGW system treatment technique requirements: CT ratio; residual disinfectant; log removal/inactivation of *Giardia*, viruses, and *Cryptosporidium*; or filter backwash recycling	TT		TT	n/a	Soil runoff	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.
Radionuclide Contaminants						
Gross alpha emitters (pCi/L)	15 pCi/L		15	0	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Beta/photon emitters (mrem/yr)	4 mrem/yr		4	0	Decay of natural and man-made deposits	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Radium, combined 226 and 228 (pCi/L)	5 pCi/L		5	0	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Uranium (µg/L)	30 µg/L (footnote 2)		30	0	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
Inorganic Contaminants						
Antimony (ppb)	0.006	1000	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
Arsenic (ppb)[3]	0.010[3]	1000	10[3]	0[3]	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Asbestos (MFL)	7 MFL		7	7	Decay of asbestos cement water mains; erosion of natural deposits	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium (ppm)	2		2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Beryllium (ppb)	0.004	1000	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
Bromate (ppb)	0.010	1000	10	0	Byproduct of drinking water disinfection	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Cadmium (ppb)	0.005	1000	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
Chloramines (ppm)	MRDL = 4.0		MRDL = 4.0	MRDLG = 4.0	Water additive used to control microbes	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine (ppm)	MRDL = 4.0		MRDL = 4.0	MRDLG = 4.0	Water additive used to control microbes	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chlorine dioxide (ppb)	MRDL = 0.8	1000	MRDL = 800	MRDLG = 800	Water additive used to control microbes	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
Chlorite (ppm)	1.0		1.0	0.8	Byproduct of drinking water disinfection	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chromium (ppb)	0.1	1000	100	100	Discharge from steel and pulp mills; erosion of natural deposits	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Copper (ppm)	AL = 1.3		AL = 1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Cyanide (ppb)	0.2	1000	200	200	Discharge from steel, metal, plastic, and fertilizer factories	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
Fluoride (ppm)	4.0		4.0	4.0	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL (2.0 ppm) or more may cause mottling of children's teeth, usually in children less than nine years of age. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in the developing teeth before they erupt from the gums.
Lead (ppb)	AL = 0.015	1000	AL = 15	0	Corrosion of household plumbing systems; erosion of natural deposits	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Mercury, inorganic (ppb)	0.002	1000	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
Nitrate, as N (ppm)	10		10	10	Runoff from fertilizer use; leaching from septic tanks or sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Nitrite, as N (ppm)	1.0		1.0	1.0	Conversion of ammonia; runoff from fertilizer use; leaching from septic tanks or sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Selenium (ppb)	0.05	1000	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
Thallium (ppb)	0.002	1000	2	0.5	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, change in their blood, or problems with their kidneys, intestines, or liver.
Synthetic Organic Contaminants						
2,4-D (ppb)	0.07	1000	70	70	Runoff from herbicide used on row crops	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5-TP Silvex (ppb)	0.05	1000	50	50	Residue of banned herbicide	Some people who drink water containing Silvex in excess of the MCL over many years could experience liver problems.
Acrylamide	TT		TT	0	Added to water during sewage/ wastewater treatment	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
Alachlor (ppb)	0.002	1000	2	0	Runoff from herbicide used on row crops	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine (ppb)	0.003	1000	3	3	Runoff from herbicide used on row crops	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
Benzo(a)pyrene, PAH (ppt)	0.0002	1,000,000	200	0	Leaching from linings of water storage tanks and distribution lines	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran (ppb)	0.04	1000	40	40	Leaching of soil fumigant used on rice and alfalfa	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Chlordane (ppb)	0.002	1000	2	0	Residue of banned termiticide	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
Dalapon (ppb)	0.2	1000	200	200	Runoff from herbicide used on rights of way	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
Di(2-ethylhexyl)adipate (ppb)	0.4	1000	400	400	Discharge from chemical factories	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties.
Di(2-ethylhexyl)phthalate (ppb)	0.006	1000	6	0	Discharge from rubber and chemical factories	Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloropropane [DBCP] (ppt)	0.0002	1,000,000	200	0	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive problems and may have an increased risk of getting cancer.
Dinoseb (ppb)	0.007	1000	7	7	Runoff from herbicide used on soybeans and vegetables	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Diquat (ppb)	0.02	1000	20	20	Runoff from herbicide use	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
Dioxin [2,3,7,8-TCDD] (ppq)	0.00000003	1,000,000,000	30	0	Emissions from waste incineration and other combustion; discharge from chemical factories	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Endothall (ppb)	0.1	1000	100	100	Runoff from herbicide use	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin (ppb)	0.002	1000	2	2	Residue of banned insecticide	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Epichlorohydrin	TT		TT	0	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.
Ethylene dibromide (ppt)	0.0005	1,000,000	50	0	Discharge from petroleum refineries	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system or kidneys, and may have an increased risk of getting cancer.
Glyphosate (ppb)	0.7	1000	700	700	Runoff from herbicide use	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
Haloacetic Acids (HAA) (ppb)	0.060	1000	60	(footnote 4)	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Heptachlor (ppt)	0.0004	1,000,000	400	0	Residue of banned pesticide	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide (ppt)	0.0002	1,000,000	200	0	Breakdown of heptachlor	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene (ppb)	0.001	1000	1	0	Discharge from metal refineries and agricultural chemical factories	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclopentadiene (ppb)	0.05	1000	50	50	Discharge from chemical factories	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
Lindane (ppt)	0.0002	1,000,000	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Methoxychlor (ppb)	0.04	1000	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
Oxamyl [Vydate] (ppb)	0.2	1000	200	200	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
PCBs [polychlorinated byphenyls] (ppt)	0.0005	1,000,000	500	0	Runoff from landfills; discharge of waste chemicals	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
Pentachlorophenol (ppb)	0.001	1000	1	0	Discharge from wood preserving factories	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
Picloram (ppb)	0.5	1000	500	500	Herbicide runoff	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Simazine (ppb)	0.004	1000	4	4	Herbicide runoff	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene (ppb)	0.003	1000	3	0	Runoff/ leaching from insecticide used on cotton and cattle	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile Organic Contaminants						
Benzene (ppb)	0.005	1000	5	0	Discharge from factories; leaching from gasoline storage tanks and landfills	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon tetrachloride (ppb)	0.005	1000	5	0	Discharge from chemical plants and other industrial activities	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Chlorobenzene (ppb)	0.1	1000	100	100	Discharge from chemical and agricultural chemical factories	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
o-Dichlorobenzene (ppb)	0.6	1000	600	600	Discharge from industrial chemical factories	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory system.
p-Dichlorobenzene (ppb)	0.075	1000	75	75	Discharge from industrial chemical factories	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
1,2-Dichloroethane (ppb)	0.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene (ppb)	0.007	1000	7	7	Discharge from industrial chemical factories	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
cis-1,2-Dichloroethylene (ppb)	0.07	1000	70	70	Discharge from industrial chemical factories	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
trans-1,2-Dichloroethylene (ppb)	0.1	1000	100	100	Discharge from industrial chemical factories	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane (ppb)	0.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane (ppb)	0.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethyl benzene (ppb)	0.7	1000	700	700	Discharge from petroleum refineries; leaching from gasoline storage tanks and landfills	Some people who drink water containing ethyl benzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
Styrene (ppb)	0.1	1000	100	100	Discharge from rubber and plastic factories; leaching from landfills	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Tetrachloroethylene (ppb)	0.005	1000	5	0	Discharge from factories and dry cleaners	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
1,2,4-Trichlorobenzene (ppb)	0.07	1000	70	70	Discharge from textile-finishing factories	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1-Trichloroethane (ppb)	0.2	1000	200	200	Discharge from metal degreasing sites and other factories	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
1,1,2-Trichloroethane (ppb)	0.005	1000	5	3	Discharge from industrial chemical factories	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune system.
Trichloroethylene (ppb)	0.005	1000	5	0	Discharge from metal degreasing sites and other factories	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Total trihalomethanes (TTHM) (ppb)	0.080	1000	80	(footnote 4)	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
Toluene (ppm)	1		1	1	Discharge from petroleum factories; leaching from gasoline storage tanks and landfills	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
Vinyl chloride (ppb)	0.002	1000	2	0	Leaching from PVC piping; discharge from plastics factories	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes (ppm)	10		10	10	Discharge from petroleum factories; discharge from chemical factories; leaching from gasoline storage tanks and landfills	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

[1]MCL (for systems that collect >40 samples per month): 5% of monthly samples are positive. MCL (for systems that collect <40 samples per month): 1 positive monthly sample.

[2]Uranium MCL is effective on December 8, 2003. Until then, there is no MCL.

[3]Beginning on January 23, 2006, the arsenic MCL is 0.010 mg/L and the MCLG is 0. Until then, the MCL is 0.05 mg/L, and there is no MCLG.

[4]The MCLGs for total trihalomethanes and haloacetic acids:

Disinfection Byproduct	MCLG, mg/L	MCLG in CCR units
Bromodichloromethane	0	0
Bromoform	0	0
Chloroform	0.07	70
Dibromochloromethane	0.06	60
Dichloroacetic acid	0	0
Monochloroacetic acid	0.07	70
Trichloroacetic acid	0.02	20

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

APPENDIX D:
REGULATED CONTAMINANTS TABLES FOR CONSUMER CONFIDENCE REPORTS
Rescinded IAB 1/7/04, effective 2/11/04

APPENDIX E:
HEALTH EFFECTS LANGUAGE FOR CONSUMER CONFIDENCE REPORTS
Rescinded IAB 1/7/04, effective 2/11/04

APPENDIX F:
HEALTH EFFECTS LANGUAGE FOR FLUORIDE LEVELS BETWEEN 2 AND 4 MG/L
Rescinded IAB 1/7/04, effective 2/11/04

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CHAPTER 43
WATER SUPPLIES—DESIGN AND OPERATION

[Prior to 12/12/90, portions of this chapter appeared in 567—Ch 41]

567—43.1(455B) General information.

43.1(1) *Emergency actions regarding water supplies.* When, in the opinion of the director, an actual or imminent hazard exists, the supplier of water shall comply with the directives or orders of the director necessary to eliminate or minimize that hazard.

43.1(2) *Prohibition on the use of lead pipes, solder and flux.* Any pipe, solder or flux which is used in the installation or repair of any public water supply system or any plumbing in a residential or nonresidential facility providing water for human consumption which is connected to a public water supply system shall be lead-free as defined in 567—40.2(455B). This action shall not apply to leaded joints necessary for the repair of cast iron pipe.

43.1(3) *Use of noncentralized treatment devices.*

a. Community PWS. Community public water systems shall not use bottled water, point-of-use (POU) or point-of-entry (POE) devices to achieve permanent compliance with a maximum contaminant level, action level, or treatment technique requirement in 567—Chapters 41 and 43.

b. Noncommunity PWS. Noncommunity public water supply systems may be allowed by the department to use point-of-use devices to achieve MCL compliance provided the contaminant does not pose an imminent threat to health (such as bacteria) nor place a sensitive population at risk (such as infants for nitrate or nitrite).

c. Reduced monitoring requirements. Bottled water, point-of-use, or point-of-entry devices cannot be used to avoid the monitoring requirements of 567—Chapters 41 and 43, but the department may allow reduced monitoring requirements in specific instances.

d. Bottled water requirements. The department may require a public water system exceeding a maximum contaminant level, action level, or treatment technique requirement specified in 567—Chapters 41 and 43 to use bottled water as a condition of an interim compliance schedule or as a temporary measure to avoid an unreasonable risk to health. Any bottled water must, at a minimum, meet the federal Food and Drug Administration bottled water standards, listed in the Code of Federal Regulations, Title 21, Chapter 165.110. The system must meet the following requirements:

(1) Monitoring program. Submit for approval to the department a monitoring program for bottled water. The monitoring program must provide reasonable assurances that the bottled water complies with all maximum contaminant levels, action levels, or treatment technique requirements in 567—Chapters 41 and 43. The public water system must monitor a representative sample of bottled water for all contaminants regulated under 567—Chapters 41 and 43 the first quarter that it supplies the bottled water to the public, and annually thereafter. Results of the monitoring program shall be provided to the department annually. If the bottled water is from a community public water system that currently meets all of the federal Safe Drinking Water Act requirements, the monitoring requirements of this subparagraph shall be waived by the department. The specific supplier of the bottled water must be identified in order for the department to waive the monitoring requirements.

(2) Certification requirements. The public water system must receive a certification from the bottled water company that the bottled water supplied has been taken from an "approved source"; the bottled water company has conducted monitoring in accordance with 43.1(3)*"b"*(1); and the bottled water meets MCLs, action levels, or treatment technique requirements as set out in 567—Chapters 41 and 43. The public water system shall provide the certification to the department the first quarter after it supplies bottled water and annually thereafter.

(3) Provision of bottled water to consumers. The public water supply system is fully responsible for the provision of sufficient quantities of bottled water to every person supplied by the public water system via door-to-door bottled water delivery.

e. Point-of-use devices. Reserved.

f. Point-of-entry devices. Reserved.

43.1(4) *Cross-connection control.* To prevent backflow or backsiphonage of contaminants into a public water supply, connection shall not be permitted between a public water supply and any other system which does not meet the monitoring and drinking water standards required by this chapter except as provided below in *"a"* or *"b."*

a. Piping and plumbing systems. Piping systems or plumbing equipment carrying nonpotable water, contaminated water, stagnant water, liquids, mixtures or waste mixtures shall not be connected to a public water supply unless properly equipped with an antisiphon device or backflow preventer acceptable to the department.

b. Bulk water loading stations. Positive separation shall be provided through the use of an air gap separation or a backflow preventer, which is acceptable to the department, at all loading stations for bulk transport tanks.

(1) Minimum air gap. The minimum required air gap shall be twice the diameter of the discharge pipe.

(2) Backflow preventer criteria. An approved backflow preventer for this application shall be a reduced pressure backflow preventer or an antisiphon device which complies with the standards of the American Water Works Association and has been approved by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California.

When, in the opinion of the department, evidence clearly indicates the source of contamination within the system is the result of a cross-connection, the department may require a public water supply to conduct public notification, identify and eliminate the connection, and implement a systemwide cross-connection program.

43.1(5) *Requirement for certified operator.* The department maintains a list of operators who are certified in accordance with 567—Chapter 81. The list includes the operator's name, certification classification (Water Treatment, Water Distribution, or Grade A Water System), and grade (A, I, II, III, or IV), and is periodically updated during the year.

a. CWS and NTNC systems. All community and nontransient noncommunity public water supply systems must have a certified operator in direct responsible charge of the treatment and distribution systems, in accordance with 567—Chapters 40 through 44 and 81.

b. TNC systems. Any transient noncommunity public water supply system which is owned by the state or federal government, such as a state park, state hospital, or interstate rest stop, or is using a groundwater under the direct influence of surface water or surface water source, must have a certified operator in direct responsible charge of the treatment and distribution systems, in accordance with 567—Chapters 40 through 44 and 81. Any TNC which uses chlorine dioxide as a disinfectant or oxidant must have a certified operator in direct responsible charge of the system, pursuant to 567—Chapter 81. The department may require any TNC to have a certified operator in direct responsible charge.

43.1(6) *Return water in public water supply systems.* Steam condensate, cooling water from engine jackets, water used in conjunction with heat exchange devices, or treated wastewater shall not be returned to the public water supply system.

43.1(7) *Sanitary surveys.* Each public water supply system must have a periodic sanitary survey, conducted by the department or its designee, which is a records review and on-site inspection of the system. The inspection evaluates the system's ability to produce and distribute safe drinking water and identifies improvements necessary to maintain or improve drinking water quality. The sanitary survey includes review and inspection of the following areas: water source; facilities (treatment, storage, distribution system); equipment; operation and management; maintenance; self-monitoring requirements; properly certified operators; and records. A report of the sanitary survey is issued by the department, and may include both enforceable required actions for remedying significant deficiencies and nonenforceable recommended actions. The frequency of the sanitary survey inspection must be at least once every five years for noncommunity systems, once every five years for community systems using groundwater, and once every three years for community systems using surface water or influenced groundwater sources. Systems must respond in writing to significant deficiencies outlined in the sanitary survey report within the time period specified in the report, indicating how and on what schedule the system will address significant deficiencies noted in the survey. At a maximum, the written

response must be received within 45 days of receiving the survey report. All systems must take the steps necessary to address significant deficiencies identified in the sanitary survey report that are within the control of the system and its governing body.
[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—43.2(455B) Permit to operate.

43.2(1) *Operation fees.*

a. Annual fee. A fee for the operation of a public water supply system shall be paid annually. The fee will not be prorated and is nonrefundable. The fee shall be based on the population served. The fee shall be the greater of $25 per year or $0.14 multiplied by the total population served by the public water supply for all community and nontransient noncommunity public water supply systems. The fee shall be $25 per year for all transient noncommunity water systems. Where a system provides water to another public water supply system (consecutive public water supply system) which is required to have an operation permit, the population of the recipient water supply shall not be counted as a part of the water system providing the water.

b. Fee notices. The department will send annual notices to public water supply systems at least 60 days prior to the date that the operation fee is due.

c. Fee payments. The annual operation fee must be paid to the department by September 1 each year.

d. Fee schedule adjustment. The department may adjust the per capita fee payment by up to +/– $0.02 per person served so as to achieve the targeted revenue of $350,000 during each fiscal year. The environmental protection commission must approve any per capita fee rate above $0.14 per person. The extent of the fee adjustment must comply with Iowa Code section 455B.183A.

e. Exempted public water supply systems. Public water supply systems located on Indian lands are exempt from the fee requirements.

f. Late fees. When the owner of a public water supply fails to make timely application or to remit payment of fees by September 1, the department will notify the system by a single notice of violation. In addition, a late fee of $100 will be assessed for failure to remit the operation fee by September 1. The department may thereafter issue an administrative order pursuant to Iowa Code section 455B.175(1) or request a referral to the attorney general under Iowa Code section 455B.175(3) as necessary.

43.2(2) *Operation permit requirement.* Except as provided in 43.2(3) and 43.2(4), no person shall operate any public water supply system or part thereof without, or contrary to any condition of, an operation permit issued by the director.

43.2(3) *Application for operation permit.* The owner of any public water supply system or part thereof must make application for an operation permit. No such system shall be operated without an operation permit, unless proper application has been made. Upon submission of a completed application form, the time requirement for having a valid operation permit is automatically extended until the application has either been approved or disapproved by the director.

43.2(4) *Operation permit application form issuance.*

a. Operation permit application form. Application for operation permits shall be made on forms provided by the department. The application for an operation permit shall be filed at least 90 days prior to the date operation is scheduled to begin unless a shorter time is approved by the director. The director shall issue or deny operation permits for facilities within 60 days of receipt of a completed application, unless a longer period is required and the applicant is so notified. The director may require the submission of additional information deemed necessary to evaluate the application. If the application is incomplete or otherwise deficient, processing of the application shall not be completed until such time as the applicant has supplied the missing information or otherwise corrected the deficiency.

b. Identity of signatories of operation permit applications. The person who signs the application for an operation permit shall be:

(1) Corporation. In the case of a corporation, a principal executive officer of at least the level of vice president. The corporation has the option of appointing a designated signatory to satisfy this requirement.

(2) Partnership. In the case of a partnership, a general partner.

(3) Sole proprietorship. In the case of a sole proprietorship, the proprietor.

(4) Public facility. In the case of a municipal, state or other public facility, by either the principal executive officer or the ranking elected official.

c. Appeal. The denial of a permit, or any permit condition, may be appealed by the applicant to the environmental protection commission pursuant to 567—Chapter 7.

43.2(5) *Operation permit conditions.*

a. Operation permit conditions. Operation permits may contain such conditions as are deemed necessary by the director to ensure compliance with all applicable rules of the department, to ensure that the public water supply system is properly operated and maintained, to ensure that potential hazards to the water consumer are eliminated promptly, and to ensure that the requirements of the Safe Drinking Water Act are met.

b. Compliance schedule. Where one or more maximum contaminant levels, treatment techniques, designated health advisories, or action levels cannot be met immediately, a compliance schedule for achieving compliance with standards may be made a condition of the permit. A compliance schedule requiring alterations in accordance with the standards for construction in 43.3(1) and 43.3(2) may also be included for any supply that, in the opinion of the director, contains a potential hazard.

c. Treatment. If the department determines that a treatment method identified in 43.3(10) is technically feasible, the department may require the system to install or use that treatment method in connection with a compliance schedule issued under the provisions of 43.2(5)*"b."* The department's determination shall be based upon studies by the system and other relevant information.

43.2(6) *Notification of change in operation permit application conditions.* The owner of a public water supply system shall notify the director within 30 days of any change in conditions identified in the permit application. This notice does not relieve the owner of the responsibility to obtain a construction permit as required by 567—43.3(455B).

43.2(7) *Renewal of operation permits.* The department may issue operation permits for durations of up to five years. Operation permits must be renewed prior to expiration in order to remain valid. The renewal date shall be specified in the permit or in any renewal. Application for renewal must be received by the director, or postmarked, 60 days prior to the renewal date, on forms provided by the department.

43.2(8) *Denial, modification, or suspension of operation permit.* The director may deny renewal of, modify, or suspend, in whole or in part, any operation permit for good cause. Denial of a new permit, renewal of an existing permit, or modification of a permit, may be appealed to the environmental protection commission pursuant to 567—Chapter 7. Suspension or revocation may occur after hearing, pursuant to 567—Chapter 7. Good cause includes the following:

a. Violation of any term or condition of the permit.

b. Obtaining a permit by misrepresentation of fact or failure to disclose fully all material facts.

c. A change in any condition that requires either a permanent or temporary modification of a permit condition.

d. Failure to submit such records and information as the director may require both generally and as a condition of the operation permit in order to ensure compliance with conditions specified in the permit.

e. Violation of any of the requirements contained in 567—Chapters 40 to 43.

f. Inability of a system to either achieve or maintain technical, managerial, or financial viability, as determined in rule 567—43.8(455B).

567—43.3(455B) Public water supply system construction.

43.3(1) *Standards for public water supplies.* Any public water supply that does not meet the drinking water standards contained in 567—Chapters 41 and 43 shall make the alterations in accordance with the standards for construction contained in 43.3(2) necessary to comply with the drinking water standards unless the public water supply has been granted a variance from a maximum contaminant level or treatment technique as a provision of its operation permit pursuant to 567—43.2(455B), provided that the public water supply meets the schedule established pursuant to 567—43.2(455B). Any public water supply that, in the opinion of the director, contains a potential hazard shall make the alterations

in accordance with the standards for construction contained in this rule necessary to eliminate or minimize that hazard. A system that is not operating within the design standards may be required by the department via a compliance schedule to upgrade the deficient areas of the system before a construction permit will be issued for any work in the system that does not address the current deficiencies.

43.3(2) *Standards for construction.*

a. The standards for a project are the Ten States Standards as adopted through 2007 and the American Water Works Association (AWWA) Standards as adopted through 2010 and 43.3(7) to 43.3(9). To the extent of any conflict between the Ten States Standards and the American Water Works Association Standards and 43.3(7) to 43.3(9), the Ten States Standards, 43.3(2), and 43.3(7) to 43.3(9) shall prevail. Additional standards include the following:

(1) Polyvinyl chloride (PVC) pipe manufactured in accordance with ASTM D2241, AWWA C900, AWWA C905, ASTM F1483, or AWWA C909 may be used for water main construction. The maximum allowable pressure for PVC or polyethylene (PE) pipe shall be determined based on a safety factor of 2.0 and a surge allowance of no less than two feet per second (2 fps).

(2) For CWS groundwater systems, a minimum of two wells shall be provided, unless the system demonstrates to the department's satisfaction that a single well will provide a reliable and adequate source. For NTNC and TNC groundwater systems, a single well is acceptable.

(3) Separation of water mains from sanitary sewers and storm sewers shall be in accordance with the Iowa Wastewater Facilities Design Standards, chapter 12, section 5.8, "Protection of Water Supplies." Where the water main either crosses under or is less than 18 inches above the sewer, one full length of water main shall be located so that both joints are as far as possible from the sewer. The sewer and water pipes must be adequately supported. A low permeability soil shall be used for backfilling material within ten feet of the point of crossing. No water pipe shall pass through or come in contact with any part of a sewer manhole.

b. Variance. When engineering justification satisfactory to the director is provided substantially demonstrating that variation from the design standards will result in equivalent or improved effectiveness, such a variation from design standards may be accepted by the director. A variance denial may be appealed to the environmental protection commission pursuant to 567—Chapter 7. Variance requests for projects qualifying for a waiver from the engineering requirement of 43.3(4) may be made without the retained services of a professional engineer.

43.3(3) *Construction permits.* No person shall construct, install or modify any project without first obtaining, or contrary to any condition of, a construction permit issued by the director or by a local public works department authorized to issue permits under 567—Chapter 9 except as provided in 43.3(3)*"b,"* 43.3(4) and 43.3(6). Construction permits are not required for point-of-use treatment devices installed by a noncommunity water system except those devices required by the department to meet a drinking water standard pursuant to 567—Chapters 41 and 43. No construction permit will be issued for a new public water supply system without a completed viability assessment, which has been approved by the department, and demonstrates that the system is viable, pursuant to 567—43.8(455B).

a. Construction permit issuance conditions. A permit to construct shall be issued by the director if the director concludes from the application and specifications submitted pursuant to 43.3(4) and 567—40.4(455B) that the project will comply with the rules of the department. The construction of the project must begin within one year from the date the permit was issued; if it is not, the permit is no longer valid. If construction is ongoing and continuous (aside from delays due to winter or exceptional weather) and the permitted project cannot be completed within one year, the permit shall remain valid until the project is completed. The department may grant an extension of the permit for a multiphase project, for a maximum two additional years.

b. Construction permit application. Application for any project shall be submitted to the department at least 30 days prior to the proposed date for commencing construction or awarding of contracts. This requirement may be waived when it is determined by the department that an imminent health hazard exists to the consumers of a public water supply. Under this waiver, construction, installation, or modification may be allowed by the department prior to review and issuance of a permit if all the following conditions are met:

(1) The construction, installation or modification will alleviate the health hazard;

(2) The construction is done in accordance with the standards for construction pursuant to 43.3(2);

(3) Plans and specifications are submitted within 30 days after construction;

(4) A professional engineer, licensed in the state of Iowa, supervises the construction; and

(5) The supplier of water receives approval of this waiver prior to any construction, installation, or modification.

c. Construction permit fees. A nonrefundable fee for a construction permit issued in accordance with subrules 43.3(3) and 43.3(4) and 567—subrules 40.3(1) and 40.4(1) shall be submitted with the application for a construction permit prior to the authorization to commence construction. The construction permit fee shall be based upon the following rate structure:

(1) Routine construction permits. The fee shall be determined based upon the total length of water main plus the non-water-main-related construction costs, calculated as follows:

1. Water mains (minimum fee of $100; maximum fee of $5,000):

Length of permitted water main	Rate
First 1,000 ft.	$100
Next 19,000 ft.	$0.10/ft.
Next 300,000 ft.	$0.01/ft.
Over 320,000 ft.	No additional charge

2. Non-water-main-related construction costs, including source, treatment, pumping, storage and waste handling (minimum fee of $100; maximum fee of $16,000):

Estimated construction cost	Rate
First $50,000	$100
Next $950,000	0.2% of estimated construction cost
Next $14,000,000	0.1% of estimated construction cost
Over $15,000,000	No additional charge

(2) "As-built" construction. "As-built" construction is defined as construction that occurred before a construction permit is issued. The fee shall be calculated according to 43.3(3)*"c"*(1), plus an additional fee of $200, and is effective for construction that occurred after December 1, 2003. The fee for water main projects permitted in accordance with paragraph 43.3(3)*"e"* shall be calculated in accordance with subparagraph 43.3(3)*"c"*(1); however, the additional "as-built" fee of $200 shall not be assessed for these projects.

(3) Change orders, addenda, permit supplements, and request for time extensions. A fee for change orders, addenda, or permit supplements will only be charged if the aggregate of the changes approved for the project to date causes the total project construction cost to exceed the original project construction cost by at least 5 percent. For water main extensions, the fee will be charged if the total length of water main exceeds the original approved length by 5 percent. The request for a time extension is a flat fee.

Categories	Rate
Change orders, addenda, and permit supplements for water mains	$0.10/ft. of additional water main, minimum fee: $50
Change orders, addenda, and permit supplements for non-water-main-related construction costs	0.2% of additional non-water-main-related construction costs, minimum fee: $50
Request for time extension	$50

(4) Calendar year construction permit fee cap. The total amount of construction permit fees for a public water supply system owner during any calendar year shall not exceed $5,000 for water mains and $16,000 for non-water-main-related construction projects.

d. Water well construction. All water well construction must be performed by a certified well contractor in accordance with 567—Chapter 82. It is the responsibility of the public water supply and certified well contractor to ensure that a public well construction permit has been issued by the department prior to initiation of well construction and to ensure that all well construction is performed in accordance with the provisions of this chapter.

e. Minor water main construction permit. A public water system may obtain a minor water main construction permit from the department for construction or replacement of minor water mains that serve additional users. By obtaining this permit, the system is able to construct new minor water mains or extend or replace existing minor water mains without obtaining an individual construction permit for each specific water main. The permit shall allow construction or replacement of minor water mains that do not exceed six inches in diameter and, in aggregation, do not increase the average daily demand (in gallons per day) of the public water supply system by more than 5 percent over the duration of the permit.

The additional users must have been included in the system's hydraulic analysis that has been approved by the department. The water demands of the additional users must be consistent with the water demands in the approved hydraulic analysis.

(1) A minor water main construction permit shall be issued subject to the following conditions:

1. The system has standard specifications for water main construction approved and on file with the department;

2. The system has adequate source capacity and, where treatment is provided, adequate treatment plant capacity to meet the peak day demand of all existing users and the proposed additional users covered under the permit;

3. The system has adequate storage capacity to meet the average day demand of all existing users and the proposed additional users covered under the permit; and

4. The system submits an application for a minor water main construction permit prior to the construction or replacement of any water main covered by the permit. The permit application must be submitted to the department 90 days before the anticipated first use of the permit, and construction shall not commence prior to the issuance of the permit. The minor water main construction permit expires on December 31 of the year in which it is issued. The application shall include the following:

- An up-to-date hydraulic analysis of the system, prepared and submitted by a licensed professional engineer, must be either on file with the department or submitted with the permit application. The hydraulic basis of flow (gallons per minute per connection) used in the analysis must be acceptable to the department. The hydraulic analysis shall include:
  - All existing water mains within the system;
  - All proposed water mains intended to be covered by the permit;
  - A demonstration that the system has adequate hydraulic capacity to serve the existing and new users under peak flow conditions without causing the pressure to fall below 20 psi anywhere within the system;
  - The location of all potential users of the system;
  - The diameter of all existing and proposed pipes;
  - The projected system flows; and
  - The static and dynamic pressures anticipated throughout the system with the addition of the new users incorporated in the analysis.
- A completed Schedule 1b, Minor Water Main Construction Permit Application (Form 542-3151), listed in 567—subrule 40.3(1).

(2) The system must submit completed Schedule 2c, Notification of Minor Water Main Construction (Form 542-3152), prior to the construction or replacement of each minor water main covered by this permit. Each water main covered by the permit must have either been included in the previously submitted hydraulic analysis or must be included in an update to the hydraulic analysis, submitted with Schedule 2c. If an update to the hydraulic analysis is submitted with Schedule 2c, it must include all portions of the distribution system potentially affected by the new construction.

(3) By January 31 of the following year, the system shall submit the following to the department:

1. A complete set of plans for all water main extensions constructed under the permit. The plans must be prepared and submitted by a licensed professional engineer.

2. Completed Schedules 1a, 1c, and 2a, listed in 567—subrule 40.3(1).

3. The construction permit fee calculated in accordance with subparagraph 43.3(3)*"c"*(1). The fee calculation shall be based upon the total length of water main constructed under the permit. For the purpose of calculating the total amount of water main construction permit fees, paid by the system in accordance with subparagraph 43.3(3)*"c"*(4), the fee shall be credited to the calendar year in which the actual fee was received by the department.

(4) A permit shall contain such conditions as are deemed necessary by the director to ensure compliance with all applicable rules of the department.

(5) The director may modify the permit, in whole or in part, at any time. The director may suspend or revoke the permit, in whole or in part, at any time by providing written notice to the permit holder and is not obligated to renew the permit. Cause for modification, suspension, or revocation of the permit includes, but is not limited to, the following:

1. Violation of any term or condition of the permit;

2. Misrepresentation of fact or failure to disclose fully all material facts in order to obtain a permit;

3. Failure to submit the records and information as required by the director, both generally and as condition of the permit;

4. Failure to submit timely reports from previous permits;

5. Failure to construct in accordance with approved design standards in accordance with subrule 43.3(2); or

6. Failure to construct in accordance with the system's approved standard specifications.

(6) No variance to the design standards is allowed under this permit. If a variance to the design standards is needed, the system must apply for an individual construction permit following the procedures in 567—subrule 40.4(1).

43.3(4) *Waiver from engineering requirements.* The requirement for plans and specifications prepared by a licensed professional engineer may be waived for the following types of projects, provided the improvement complies with the standards for construction. This waiver does not relieve the supplier of water from meeting the application and permit requirements pursuant to 43.3(3), except that the applicant need not obtain a written permit prior to installing the equipment.

a. Simple chemical feed, if all the following conditions are met:

(1) The improvement consists only of a simple chemical solution application or installation, which in no way affects the performance of a larger treatment process, or is included as part of a larger treatment project;

(2) The chemical application is by a positive displacement pump (of the piston type with a solenoid operated diaphragm), the acceptability of said pump to be determined by the department;

(3) The supplier of water provides the department with a schematic of the installation and manufacturer's specifications sufficient enough to determine if the simple chemical feed installation meets, where applicable, standards for construction pursuant to 43.3(2);

(4) The final installation is approved based on an on-site review and inspection by department staff; and

(5) The installation includes only the prepackaged delivery of chemicals (from sacks, containers, or carboys) and does not include the bulk storage or transfer of chemicals (from a delivery vehicle).

b. Self-contained treatment unit, if all the following conditions are met:

(1) The equipment is of a type which can be purchased "off the shelf," is self-contained requiring only a piping hookup for installation and operates throughout a range of 35 to 80 pounds per square inch;

(2) The plant is designed to serve no more than an average of 250 individuals per day;

(3) The department receives adequate information from the supplier of water on the type of treatment unit, such as manufacturer's specifications, a schematic indicating the installation's location within the system and any other information necessary for review by the department to determine if the installation will alleviate the maximum contaminant level violation; and

(4) The final installation is approved based on an on-site inspection by department staff.

43.3(5) *Project planning and basis of design.* An engineering report containing information and data necessary to determine the conformance of the project to the standards for construction and operation in 43.3(2) and the adequacy of the project to supply water in sufficient quantity and at sufficient pressure and of a quality that complies with drinking water standards pursuant to 567—Chapters 41 and 43 must be submitted to the department either with the project or in advance.

a. Such information and data must supply pertinent information as set forth in part one of the Ten States Standards.

b. The department may reject receipt or delay review of the plans and specifications until an adequate basis of design is received.

43.3(6) *Standard specifications for water main construction.* Standard specifications for water main construction by an entity may be submitted to the department or an authorized local public works department for approval. Such approval shall apply to all future water main construction by or for that entity for which plans are submitted with a statement requiring construction in accordance with all applicable approved standard specifications unless the standards for public water supply systems specified in 43.3(2) are modified subsequent to such approval and the standard specifications would not be approvable under the modified standards. In those cases where such approved specifications are on file, construction may commence 30 days following receipt of such plans by the department or an authorized local public works department if no response has been received indicating construction shall not commence until a permit is issued.

43.3(7) *Site, separation distance, and monitoring requirements for new raw water source(s) and underground finished water storage facilities.*

a. Approval required. The site for each proposed raw water supply source or finished water below-ground level storage facility must be approved by the department prior to the submission of plans and specifications.

b. Criteria for approval. A site may be approved by the director if the director concludes that the criteria in this paragraph are met.

(1) Groundwater source. Wells shall be planned and constructed to adapt to the geologic and groundwater conditions of the proposed well site to ensure production of water from the wells that is both microbially safe and free of substances that could cause harmful human health effects. Groundwater wells must meet the following requirements:

1. Drainage must be directed away from the well in all directions for a minimum radius of 15 feet.

2. A well site must be separated from contamination sources by the distances specified in Table A at a minimum.

3. After the well site has received preliminary approval from the department, the owner of the proposed well must submit proof of legal control of the land for a 200-foot radius around the well, through purchase, lease, easement, ordinance, or other similar means. Proof of legal control must be submitted as part of the construction permit application, prior to construction. The legal control must be maintained by the public water system for the life of the well, and the system must ensure that the siting criteria indicated in Table A are met.

However, if the proposed well is for an existing noncommunity water system and is replacing an existing well that either does not meet the current standards or is in poor condition, the requirement of 200-foot legal control may be waived by the department provided that:

- The proposed well is located on the best available site;
- The existing facility does not have adequate land to provide the 200-foot control zone;
- The owner has attempted to obtain legal control without success; and
- There is no other public water supply available to which the supply could connect.

4. When the proposed well is located in an existing well field and will withdraw water from the same aquifer as the existing well(s), individual separation distances may be waived if substantial historical data are available indicating that no contamination has resulted.

5. No well shall be constructed within the projected plume of any known anthropogenic groundwater contamination without the department's written approval. The department may allow a well to be constructed within a contamination plume if the applicant can provide adequate treatment

to ensure that all drinking water standards are met and that the pumpage of the proposed well will not cause migration of the plume such that it impacts the water quality of other nearby wells. The applicant must demonstrate, using a hydrogeologic model acceptable to the department, that the time of transport is greater than two years for a viral, bacterial, or other microorganism contaminant and greater than ten years for all chemical contaminants. At a minimum, modeling of the projected plume must take into account the proposed pumpage rate of the well. The department may require additional construction standards for these situations to ensure protection of the groundwater from contamination.

6. The department may require that an identification tag be applied to each well and may supply the numbered tag. The responsibility for ensuring that the tag is properly attached to the well is with the certified water well contractor for new wells and with the department for existing wells.

(2) Surface water source. The applicant must submit proof that a proposed surface water source can, through readily available treatment methodology, comply with 567—Chapters 41 and 43, and that the raw water source is adequately protected against potential health hazards including, but not limited to, point source discharges, hazardous chemical spills, and the potential sources of contamination listed in Table A.

After a surface water impoundment has received preliminary approval from the department for use as a raw water source, the owner of the water supply system shall submit proof of legal control through ownership, lease, easement, or other similar means, of contiguous land for a distance of 400 feet from the shoreline at the maximum water level. Legal control shall be for the life of the impoundment and shall control location of sources of contamination within the 400-foot distance. Proof of legal control should be submitted as part of the construction permit application and shall be submitted prior to issuance of a permit to construct.

(3) Below-ground storage facilities. The minimum separation between a below-ground level finished water storage facility and any source of contamination listed in Table A as being 50 feet or more shall be 50 feet. The specific separation distances listed in Table A that are less than 50 feet shall apply to a below-ground level finished water storage facility as indicated in the table.

(4) Separation distances. Greater separation distances may be required where necessary to ensure that no adverse effects to water supplies or the existing environment will result. Lesser separation distances may be considered if detailed justification is provided by the applicant's engineer showing that no adverse effects will result from a lesser separation distance, and the regional staff recommends approval of the lesser distance. Such exceptions must be based on special construction techniques or localized geologic or hydrologic conditions.

c. New source water monitoring requirements. Water quality monitoring shall be conducted on all new water sources and results submitted to the department prior to placing the new water source into service.

(1) All sources. Water samples shall be collected from each new water source and analyzed for all appropriate contaminants as specified in 567—Chapter 41 consistent with the particular water system classification. If multiple new sources are being added, compositing of the samples (within a single system) shall be allowed in accordance with the composite sampling requirements outlined in 567—Chapter 41. A single sample may be allowed to meet this requirement, if approved by the department.

Subsequent water testing shall be conducted consistent with the water system's water supply operation permit monitoring schedule.

(2) Groundwater sources. Water samples collected from groundwater sources in accordance with 43.3(7)*"c"*(1) shall be conducted at the conclusion of the drawdown/yield test pumping procedure, with the exception of bacteriological monitoring. Bacteriological monitoring must be conducted after disinfection of each new well and subsequent pumping of the chlorinated water to waste. Water samples should also be analyzed for alkalinity, ammonia, pH, calcium, chloride, copper, hardness, iron, magnesium, manganese, potassium, silica, specific conductance, sodium, sulfate, filterable and nonfilterable solids, and zinc.

(3) Surface water sources. Water samples collected from surface water sources in accordance with 43.3(7)*"c"*(1) should be collected prior to the design of the surface water treatment facility and shall be

conducted and analyzed prior to utilization of the source. The samples shall be collected during June, July, and August. In addition, quarterly monitoring shall be conducted in March, June, September, and December at a location representative of the raw water at its point of withdrawal. Monitoring shall be for turbidity, alkalinity, pH, calcium, chloride, color, copper, hardness, iron, magnesium, manganese, potassium, silica, specific conductance, sodium, sulfate, filterable and nonfilterable solids, carbonate, bicarbonate, algae (qualitative and quantitative), total organic carbon, five-day biochemical oxygen demand, dissolved oxygen, surfactants, nitrogen series (organic, ammonia, nitrite, and nitrate), and phosphate.

TABLE A: SEPARATION DISTANCES

SOURCE OF CONTAMINATION	REQUIRED MINIMUM DISTANCE FROM WELL, IN FEET	
	Deep Well[1]	Shallow Well[1]
WASTEWATER STRUCTURES:		
Point of Discharge to Ground Surface		
Sanitary & industrial discharges	400	400
Water treatment plant wastes	50	50
Well house floor drains	5	5
Sewers & Drains[2]		
Sanitary & storm sewers, drains	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Sewer force mains	0 – 75 feet: prohibited 75 – 400 feet if water main pipe 400 – 1000 feet if water main or sanitary sewer pipe	0 – 75 feet: prohibited 75 – 400 feet if water main pipe 400 – 1000 feet if water main or sanitary sewer main pipe
Water plant treatment process wastes that are treated onsite	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer pipe	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer main pipe
Water plant wastes to sanitary sewer	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Well house floor drains to sewers	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Well house floor drains to surface	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer pipe	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer main pipe
Land Disposal of Treated Wastes		
Irrigation of wastewater	200	400
Land application of solid wastes[3]	200	400
Other		
Cesspools & earth pit privies	200	400
Concrete vaults & septic tanks	100	200
Lagoons	400	1000
Mechanical wastewater treatment plants	200	400
Soil absorption fields	200	400
CHEMICALS:		
Chemical application to ground surface	100	200

SOURCE OF CONTAMINATION	REQUIRED MINIMUM DISTANCE FROM WELL, IN FEET	
	Deep Well[1]	Shallow Well[1]
Chemical & mineral storage above ground	100	200
Chemical & mineral storage on or under ground	200	400
Transmission pipelines (such as fertilizer, liquid petroleum, or anhydrous ammonia)	200	400
ANIMALS:		
Animal pasturage	50	50
Animal enclosure	200	400
Earthen silage storage trench or pit	100	200
Animal Wastes		
Land application of liquid or slurry	200	400
Land application of solids	200	400
Solids stockpile	200	400
Storage basin or lagoon	400	1000
Storage tank	200	400
MISCELLANEOUS:		
Basements, pits, sumps	10	10
Cemeteries	200	200
Cisterns	50	100
Flowing streams or other surface water bodies	50	50
Railroads	100	200
Private wells	200	400
Solid waste landfills and disposal sites[4]	1000	1000

[1]Deep and shallow wells, as defined in 567—40.2(455B): A deep well is a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn. A shallow well is a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

[2]The separation distances are dependent upon two factors: the type of piping that is in the existing sewer or drain, as noted in the table, and that the piping was properly installed in accordance with the standards.

[3]Solid wastes are those derived from the treatment of water or wastewater. Certain types of solid wastes from water treatment processes may be land-applied within the separation distance on an individual, case-by-case basis.

[4]Solid waste means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities.

43.3(8) *Drinking water system components.* Any drinking water system component which comes into contact with raw, partially treated, or finished water must be suitable for the intended use in a potable water system. The component must meet the current American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61 specifications, if such specification exists for the particular product, unless approved components are not reasonably available for use, in accordance with guidance provided by the department. If the component does not meet the ANSI/NSF Standard 61 specifications or no specification is available, the person seeking to supply or use the component must prove to the satisfaction of the department that the component is not toxic or otherwise a potential hazard in a potable public water supply system.

43.3(9) *Water treatment filter media material.* For single media filters, grain sizes up to 0.8 mm effective size may be approved for filters designed to remove constituents other than those contained in the primary drinking water standards. Pilot or full-scale studies demonstrating satisfactory treatment efficiency and operation with the proposed media will be required prior to issuing any construction permits which allow filter media sizes greater than 0.55 mm.

43.3(10) *Best available treatment technology.*

a. BATs for organic compounds. The department identifies as indicated in the table below either granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OXID) as the best available technology, treatment technique, or other means available for achieving compliance with the maximum contaminant level for organic contaminants identified in 567—paragraph 41.5(1)*"b."* For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

ORGANIC CONTAMINANT	GAC	PTA	OXID
Alachlor	x		
Aldicarb	x		
Aldicarb sulfone	x		
Aldicarb sulfoxide	x		
Atrazine	x		
Benzene	x	x	
Benzo(a)pyrene	x		
Carbofuran	x		
Carbon tetrachloride	x	x	
Chlordane	x		
2,4-D	x		
Dalapon	x		
Dibromochloropropane (DBCP)	x	x	
o-Dichlorobenzene	x	x	
p-Dichlorobenzene	x	x	
1,2-Dichloroethane	x	x	
cis-1,2-Dichloroethylene	x	x	
trans-1,2-Dichloroethylene	x	x	
1,1-Dichloroethylene	x	x	
Dichloromethane		x	
1,2-Dichloropropane	x	x	
Di(2-ethylhexyl)adipate	x	x	
Di(2-ethylhexyl)phthalate	x		
Dinoseb	x		
Diquat	x		
Endothall	x		
Endrin	x		
Ethylene dibromide (EDB)	x	x	
Ethylbenzene	x	x	
Glyphosate			x
Heptachlor	x		
Heptachlor epoxide	x		
Hexachlorobenzene	x		

ORGANIC CONTAMINANT	GAC	PTA	OXID
Hexachlorocyclopentadiene	x	x	
Lindane	x		
Methoxychlor	x		
Monochlorobenzene	x	x	
Oxamyl (Vydate)	x		
Pentachlorophenol	x		
Picloram	x		
Polychlorinated biphenyls (PCB)	x		
Simazine	x		
Styrene	x	x	
2,4,5-TP (Silvex)	x		
Tetrachloroethylene	x	x	
1,2,4-Trichlorobenzene	x	x	
1,1,1-Trichloroethane	x	x	
1,1,2-Trichloroethane	x	x	
Trichloroethylene	x	x	
2,3,7,8-TCDD (Dioxin)	x		
Toluene	x	x	
Toxaphene	x		
Vinyl chloride		x	
Xylene	x	x	

b. BATs for inorganic compounds and radionuclides.

(1) Inorganic compounds. The department identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the inorganic contaminants listed in 567—paragraph 41.3(1)*"b,"* except arsenic and fluoride.

INORGANIC CHEMICAL	BAT(s)
Antimony	2, 7
Arsenic[d]	1, 2, 5, 6, 7, 9, 11[e]
Asbestos	2, 3, 8
Barium	5, 6, 7, 9
Beryllium	1, 2, 5, 6, 7
Cadmium	2, 5, 6, 7
Chromium	2, 5, 6[b], 7
Cyanide	5, 7, 12
Mercury	2[a], 4, 6[a], 7[a]
Nickel	5, 6, 7
Nitrate	5, 7, 9
Nitrite	5, 7
Selenium	1, 2[c], 6, 7, 9
Thallium	1, 5

Key to BATs

1=Activated Alumina	5=Ion Exchange	9=Electrodialysis
2=Coagulation/Filtration*	6=Lime Softening*	10=Chlorine
3=Direct and Diatomite Filtration	7=Reverse Osmosis	11=Oxidation/Filtration
4=Granular Activated Carbon	8=Corrosion Control	12=Alkaline Chlorination (pH greater than or equal to 8.5)

*not BAT for systems with less than 500 service connections

[a]BAT only if influent Hg concentrations are less than or equal to 10 micrograms/liter.

[b]BAT for Chromium III only.

[c]BAT for Selenium IV only.

[d]BAT for Arsenic V. Preoxidation may be required to convert Arsenic III to Arsenic V.

[e]To obtain high removals, iron to arsenic ratio must be at least 20:1.

(2) Small system compliance technologies for arsenic. The department identifies in the following table the affordable technology, treatment techniques, or other means available to systems serving 10,000 or fewer persons for achieving compliance with the arsenic maximum contaminant level.

SMALL SYSTEM COMPLIANCE TECHNOLOGIES FOR ARSENIC[1]

Technology	Affordable for listed small system categories[2]
Activated alumina	All size categories
Coagulation/filtration[3]	501 – 3,300 and 3,301 – 10,000
Coagulation-assisted microfiltration	501 – 3,300 and 3,301 – 10,000
Electrodialysis reversal[4]	501 – 3,300 and 3,301 – 10,000
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH > 10.5)	All size categories
Ion exchange	All size categories
Lime softening[3]	501 – 3,300 and 3,301 – 10,000
Oxidation/filtration[5]	All size categories
Reverse osmosis[4]	501 – 3,300 and 3,301 – 10,000

[1]Technologies are for Arsenic V. Preoxidation may be required to convert Arsenic III to Arsenic V.

[2]There are three categories of small systems: those serving 25 to 500 people, those serving 501 to 3,300 people, and those serving 3,301 to 10,000 people.

[3]Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.

[4]Technologies reject a large volume of water. May not be appropriate for areas where water quantity may be an issue.

[5]To obtain high removals, iron to arsenic ratio must be at least 20:1.

(3) Radionuclides.

1. The department identifies in the following table the best available technology for achieving compliance with the radionuclide maximum contaminant levels as indicated.

RADIONUCLIDE BAT

Contaminant	Best Available Technology
Gross alpha particle activity (excluding radon and uranium)	Reverse osmosis
Beta particle and photon radioactivity	Ion exchange, reverse osmosis
Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening
Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration

2. Small system compliance technologies. The following technologies are identified as radionuclide BAT for systems serving 10,000 or fewer people.

RADIONUCLIDES SMALL SYSTEM COMPLIANCE TECHNOLOGIES

Contaminant	Compliance Technology[a]
Gross alpha particle activity	2
Beta particle and photon radioactivity	1, 2
Combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7
Uranium	1, 2[b], 3[b], 8, 9

[a]Compliance technologies are listed with their corresponding number and potential limitations for use, as follows:

1: Ion exchange. The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.
2: Reverse osmosis. Reject water disposal options should be carefully considered before choosing this technology.
3: Lime softening. The complexity of the water chemistry may make this technology too complex for small systems.
4: Green sand filtration. Removal efficiencies can vary depending on water quality.
5: Coprecipitation with barium sulfate. This technology has limited applications to small systems, and is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.
6: Electrodialysis/electrodialysis reversal.
7: Pre-formed hydrous manganese oxide filtration. This technology is most applicable to small systems that have existing filtration technology.
8: Activated alumina. The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology. Handling of chemicals required during regeneration and pH adjustment requires an adequately trained operator.
9: Enhanced coagulation/filtration. This technology assumes that it is a modification to an existing coagulation/filtration process.

[b]Not recommended for systems serving 25 to 500 persons.

c. BATs for disinfection byproducts and disinfectants. The department identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the disinfection byproducts listed in 567—paragraph 41.5(2)*"b,"* and the maximum residual disinfectant levels listed in 567—paragraph 41.5(2)*"c."*

DBP MCL or MRDL	Best Available Technology
Bromate MCL	Control of ozone treatment process to reduce production of bromate
Chlorite MCL	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels
HAA5 and TTHM MCL running annual average	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant
HAA5 and TTHM MCL LRAA	• Non-consecutive system: Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight cutoff that is less than or equal to 1000 Daltons; or GAC20 • Consecutive system serving at least 10,000 persons*: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance • Consecutive system serving fewer than 10,000 persons*: Improved distribution system and storage tank management to reduce residence time
MRDL	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels

* Applies only to the disinfected water that consecutive systems buy or otherwise receive.

d. Requirement to install BAT. The department shall require community water systems and nontransient noncommunity water systems to install and use any treatment method identified in 43.3(10)

as a condition for granting an interim contaminant level except as provided in paragraph *"e."* If, after the system's installation of the treatment method, the system cannot meet the maximum contaminant level, the system shall be eligible for a compliance schedule with an interim contaminant level granted under the provisions of 567—subrule 42.1(9) and rule 567—43.2(455B).

e. Engineering assessment option. If a system can demonstrate through comprehensive engineering assessments, which may at the direction of the department include pilot plant studies, that the treatment methods identified in 43.3(10) would only achieve a de minimis reduction in contaminants, the department may issue a schedule of compliance that requires the system being granted the variance to examine other treatment methods as a condition of obtaining the interim contaminant level.

f. Compliance schedule. If the department determines that a treatment method identified in 43.3(10)*"a," "b,"* and *"c"* is technically feasible, the department may require the system to install or use that treatment method in connection with a compliance schedule issued under the provisions of 567—subrule 42.1(9) and rule 567—43.2(455B). The determination shall be based upon studies by the system and other relevant information.

g. Avoidance of unacceptable risk to health (URTH). The department may require a public water system to use bottled water, point-of-use devices, point-of-entry devices or other means as a condition of granting a variance or an exemption, or issuance of a compliance schedule, from the requirements of 43.3(10) to avoid an unreasonable risk to health.

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567—43.4(455B) Certification of completion. Within 30 days after completion of construction, installation or modification of any project, the permit holder shall submit a certification by a licensed professional engineer that the project was completed in accordance with the approved plans and specifications except if the project received a waiver pursuant to 43.3(4).

567—43.5(455B) Filtration and disinfection for surface water and influenced groundwater public water supply systems.

43.5(1) *Applicability/general requirements.*

a. These rules apply to all public water supply systems using surface water or groundwater under the direct influence of surface water, in whole or in part, and establish criteria under which filtration is required as a treatment technique. In addition, these rules establish treatment technique requirements in lieu of maximum contaminant levels for *Giardia lamblia*, heterotrophic plate count bacteria, *Legionella*, viruses and turbidity. Each public water system with a surface water source or a groundwater source under the direct influence of surface water must provide treatment of that source water which complies with these treatment technique requirements. Systems which serve at least 10,000 persons must also comply with the requirements of 567—43.9(455B). Systems which serve fewer than 10,000 persons must also comply with the requirements of 567—43.10(455B). The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(1) At least 99.9 percent (3-log) removal or inactivation of *Giardia lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer; and

(2) At least 99.99 percent (4-log) removal or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

b. Criteria for identification of groundwater under the direct influence of surface water. "Groundwater under the direct influence of surface water" means any water beneath the surface of the ground with: (1) significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*, or (2) significant and relatively rapid shifts in water characteristics such as turbidity (particulate content), temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the department. The department determination of direct influence may be based on site-specific measurements of water quality or documentation of well

construction characteristics and geology with field evaluation. Only surface water and groundwater sources under the direct influence of surface water that are at risk to the contamination from Giardia cysts are subject to the requirements of this rule. Groundwater sources shall not be subject to this rule. The evaluation process shall be used to delineate between surface water, groundwater under the direct influence of surface water and groundwater. The identification of a source as surface water and groundwater under the direct influence of surface water shall be determined for an individual source, by the department, in accordance with the following criteria. The public water supply shall provide to the department that information necessary to make the determination. The evaluation process will involve one or more of the following steps:

(1) Preliminary evaluation. The department shall conduct a preliminary evaluation of information on the source provided by the public water supply to determine if the source is an obvious surface water (e.g., pond, lake, stream) or groundwater under the direct influence of surface water. The source shall be evaluated during that period of highest susceptibility to influence from surface water. The preliminary evaluation may include a review of surveys, reports, geological information of the area, physical properties of the source, and a review of departmental and public water system records. If the source is identified as a surface water, no additional evaluation shall be conducted. If the source is a groundwater and identified as a deep well, it shall be classified as a groundwater not under the direct influence of surface water and no additional evaluation shall be conducted, unless through direct knowledge or documentation the source does not meet the requirements of 43.5(1)*"b"*(2). The deep well shall then be evaluated in accordance with 43.5(1)*"b"*(3). If the source is a shallow well, the source shall be evaluated in accordance with 43.5(1)*"b"*(2). If the source is a spring, infiltration gallery, radial collector well, or any other subsurface source, it shall be evaluated in accordance with 43.5(1)*"b"*(3).

(2) Well source evaluation. Shallow wells greater than 50 feet in lateral distance from a surface water source shall be evaluated for direct influence of surface water through a review of departmental or public water system files in accordance with 43.5(1)*"b"*(2)"1" and 43.5(1)*"b"*(2)"2." Sources that meet the criteria shall be considered to be not under the direct influence of surface water. No additional evaluation will be required. Shallow wells 50 feet or less in lateral distance from a surface water shall be in accordance with 43.5(1)*"b"*(3) and (4).

1. Well construction criteria. The well shall be constructed so as to prevent surface water from entering the well or traversing the casing.

2. Water quality criteria. Water quality records shall indicate:

- No record of total coliform or fecal coliform contamination in untreated samples collected over the past three years.
- No history of turbidity problems associated with the well, other than turbidity as a result of inorganic chemical precipitates.
- No history of known or suspected outbreak of Giardia or other pathogenic organisms associated with surface water (e.g., *Cryptosporidium*) which has been attributed to the well.

3. Other available data. If data on particulate matter analysis of the well are available, there shall be no evidence of particulate matter present that is associated with surface water. If information on turbidity or temperature monitoring of the well and nearby surface water is available, there shall be no data on the source which correlates with that of a nearby surface water.

4. Further evaluation. Wells that do not meet all the requirements listed shall require further evaluation in accordance with 43.5(1)*"b"*(3) and (4).

(3) Formal evaluation. The evaluation shall be conducted by the department or a licensed professional engineer at the direction of the public water supply. The evaluation shall include:

1. Complete file review. In addition to the information gathered in 43.5(1)*"b"*(1), the complete file review shall consider but not be limited to: design and construction details; evidence of direct surface water contamination; water quality analysis; indications of waterborne disease outbreaks; operational procedures; and customer complaints regarding water quality or water-related infectious illness. Sources other than a well source shall be evaluated in a like manner to include a field survey.

2. Field survey. A field survey shall substantiate findings of the complete file review and determine if the source is at risk to pathogens from direct surface water influence. The field survey shall examine

the following criteria for evidence that surface water enters the source through defects in the source which include but are not limited to: a lack of a surface seal on wells, infiltration gallery laterals exposed to surface water, springs open to the atmosphere, surface runoff entering a spring or other collector, and distances to obvious surface water sources.

A report summarizing the findings of the complete file review and field survey shall be submitted to the department for final review and classification of the source. If the complete file review or field survey demonstrates conclusively that the source is subject to the direct surface water influence, the source shall be classified as under the direct influence of surface water. Either method or both may be used to demonstrate that the source is a surface water or groundwater under the direct influence of surface water. If the findings do not demonstrate conclusive evidence of direct influence of surface water, the analysis outlined in 43.5(1)*"b"*(4) should be conducted.

(4) Particulate analysis and physical properties evaluation.

1. Surface water indicators. Particulate analysis shall be conducted to identify organisms which only occur in surface waters as opposed to groundwaters, and whose presence in a groundwater would indicate the direct influence of surface water.

- Identification of a Giardia cyst, live diatoms, and blue-green, green, or other chloroplast containing algae in any source water shall be considered evidence of direct surface water influence.
- Rotifers and insect parts are indicators of surface water. Without knowledge of which species is present, the finding of rotifers indicates that the source is either directly influenced by surface water, or the water contains organic matter sufficient to support the growth of rotifers. Insects or insect parts shall be considered strong evidence of surface water influence, if not direct evidence.
- The presence of coccidia (e.g., *Cryptosporidium*) in the source water is considered a good indicator of direct influence of surface water. Other macroorganisms (greater than 7 um) which are parasitic to animals and fish such as, but not limited to, helminths (e.g., tapeworm cysts), ascaris, and Diphyllobothrium, shall be considered as indicators of direct influence of surface water.

2. Physical properties. Turbidity, temperature, pH and conductivity provide supportive, but less direct, evidence of direct influence of surface water. Turbidity fluctuations of greater than 0.5-1.0 NTU over the course of a year may be indicative of direct influence of surface water. Temperature fluctuations may also indicate surface water influence. Changes in other chemical parameters such as pH, conductivity, or hardness may also give an indirect indication of influence by nearby surface water.

c. Compliance. A public water system using a surface water source or a groundwater source under the direct influence of surface water is considered to be in compliance with the requirements of this subrule if it meets the filtration requirements in 43.5(3) and the disinfection requirements in 43.5(2) in accordance with the effective dates specified within the respective subrules.

d. Certified operator requirement. Each public water system using a surface water source or a groundwater source under the direct influence of surface water must be operated by a certified operator who meets the requirements of 567—Chapter 81.

43.5(2) *Disinfection.* All community and noncommunity public water supply systems using surface water or groundwater under the direct influence of surface water in whole or in part shall be required to provide disinfection in compliance with this subrule and filtration in compliance with 43.5(3). If the department has determined that filtration is required, the system must comply with any interim disinfection requirements the department deems necessary before filtration is installed. A system providing filtration on or before December 30, 1991, must meet the disinfection requirements of this subrule beginning June 29, 1993. A system providing filtration after December 30, 1991, must meet the disinfection requirements of this subrule when filtration is installed. Failure to meet any requirement of this subrule after the applicable date specified in this subrule is a treatment technique violation. The disinfection requirements are as follows:

a. Disinfection treatment criteria. The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve at least 99.9 percent (3-log) inactivation or removal of *Giardia lamblia* cysts and at least 99.99 percent (4-log) inactivation or removal of viruses, acceptable to the department. At least 0.5 log inactivation of *Giardia lamblia* cysts must be achieved through disinfection treatment even if the required inactivation or removal is met or exceeded through physical

treatment processes. Each system is required to calculate the total inactivation ratio ($CT_{calculated}/CT_{required}$) each day the treatment plant is in operation. The system's total inactivation ratio must be equal to or greater than 1.0 in order to ensure that the minimum inactivation and removal requirements have been achieved.

b. Disinfection system. The disinfection system must include:

(1) Redundant components, including an auxiliary power supply with automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system, or

(2) Automatic shutoff of delivery of water to the distribution system whenever there is less than 0.3 mg/L of residual disinfectant concentration in the water. If the department determines that automatic shutoff would cause unreasonable risk to health or interfere with fire protection, the system must comply with 43.5(2)*"b"*(1).

c. Residual disinfectant entering system. The residual disinfectant concentration in the water entering the distribution system, measured as specified in 43.5(4)*"a"*(5) and 43.5(4)*"b"*(2), cannot be less than 0.3 mg/L free residual or 1.5 mg/L total residual chlorine for more than four hours.

d. Residual disinfectant in the system. The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in 43.5(4)*"a"*(5) and 43.5(4)*"b"*(2), cannot be undetectable in more than 5 percent of the samples each month for any two consecutive months that the system serves water to the public. Water within the distribution system with a heterotrophic plate count bacteria concentration less than or equal to 500/mL, measured as heterotrophic plate count (HPC) as specified in 567—paragraph 41.2(3)*"e,"* is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Therefore, the value "V" in the following formula cannot exceed 5 percent in one month for any two consecutive months.

$$V = \left[\frac{c + d + e}{a + b}\right] \times 100$$

where:

a = number of instances in which the residual disinfectant concentration is measured;

b = number of instances in which the residual disinfectant concentration is not measured but heterotrophic plate count bacteria (HPC) is measured;

c = number of instances in which the residual disinfectant concentration is measured but not detected and no HPC is measured;

d = number of instances in which no residual disinfectant concentration is detected and where the HPC is greater than 500/mL; and

e = number of instances in which the residual disinfectant concentration is not measured and HPC is greater than 500/mL.

43.5(3) *Filtration.*

a. Applicability. A public water system that uses a surface water source or a groundwater source under the direct influence of surface water must provide treatment consisting of both disinfection, as specified in 43.5(2), and filtration treatment which complies with the turbidity requirements of subrules 43.5(3), 43.5(4), and 43.5(5). A system providing or required to provide filtration on or before December 30, 1991, must meet the requirements of this subrule by June 29, 1993. A system providing or required to provide filtration after December 30, 1991, must meet the requirements of this subrule when filtration is installed. Beginning January 1, 2002, systems serving at least 10,000 people must meet the turbidity requirements in 567—43.9(455B). Beginning January 1, 2005, systems serving fewer than 10,000 people must meet the turbidity requirements in 567—43.10(455B). A system shall install filtration within 18 months after the department determines, in writing, that filtration is required. The department may require and the system shall comply with any interim turbidity requirements the department deems

necessary. Failure to meet any requirements of the referenced subrules after the dates specified is a treatment technique violation.

b. Conventional filtration treatment or direct filtration.

(1) For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.5 nephelometric turbidity units (NTU) in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

c. Slow sand filtration.

(1) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

d. Diatomaceous earth filtration.

(1) For systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

e. Other filtration technologies. A public water system may use either a filtration technology not listed in 43.5(3)*"b"* to 43.5(3)*"d"* or a filtration technology listed in 43.5(3)*"b"* or 43.5(3)*"c"* at a higher turbidity level if it demonstrates to the department through a preliminary report submitted by a licensed professional engineer, using pilot plant studies or other means, that the alternative filtration technology in combination with disinfection treatment that meets the requirements of 43.5(2) consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* and 99.99 percent removal or inactivation of viruses. For a system that uses alternative filtration technology and makes this demonstration, the turbidity treatment technique requirements are as follows:

(1) The turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

Beginning January 1, 2002, systems serving at least 10,000 people must meet the requirements for other filtration technologies in 43.9(3)*"b."*

Beginning January 1, 2005, systems serving fewer than 10,000 people must meet the requirements for other filtration technologies in 567—43.10(455B).

43.5(4) *Analytical and monitoring requirements.*

a. Analytical requirements. Only the analytical method(s) specified in this paragraph, or otherwise approved by the department, may be used to demonstrate compliance with the requirements of 43.5(2) and 43.5(3). Measurements for pH, temperature, turbidity, and residual disinfectant concentrations must be conducted by a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83. For consecutive public water supplies from a surface water or groundwater under the direct influence of surface water system, the disinfectant concentration analyses must be conducted by a certified operator who meets the requirements of 567—Chapter 81. Measurements for heterotrophic plate count bacteria must be conducted by a laboratory certified by the department to do such analysis.

(1) Turbidity analytical methodology. Turbidity analysis shall be conducted using the following methodology:

Methodology	Analytical Method			
	EPA	SM	GLI	HACH
Nephelometric	180.1[1]	2130B[2]	Method 2[3]	FilterTrak 10133[4]

[1]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA-600/R-93-100, August 1993. Available at NTIS, PB94-121811.

[2]Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998 (any of the three editions may be used), American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[3]GLI Method 2, "Turbidity," November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, WI 53223.

[4]Hach FilterTrak Method 10133, "Determination of Turbidity by Laser Nephelometry," January 2000, Revision 2.0, Hach Co., P.O. Box 389, Loveland, CO 80539-0389, telephone (800)227-4224.

(2) Temperature analytical methodology. The temperature shall be determined in compliance with the methodology listed in 567—subparagraph 41.4(1)*"g"*(1).

(3) pH (hydrogen ion concentration) analytical methodology. The pH shall be determined in compliance with the methodology listed in 567—subparagraph 41.4(1)*"g"*(1).

(4) Heterotrophic plate count bacteria analytical methodology. The heterotrophic plate count bacteria sampling and analysis shall be conducted in compliance with 567—subrule 41.2(3) and 43.5(2)*"d."* The time from sample collection to initiation of analysis shall not exceed eight hours, and the samples must be held below 10 degrees C during transit.

(5) Residual disinfectant analytical methodology. The residual disinfectant concentrations shall be determined in compliance with one of the analytical methods in the following table. Residual disinfectant concentrations for free chlorine and combined chlorine may also be measured by using DPD colorimetric test kits. Free and total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument provided the chemistry, accuracy and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five days.

Disinfectant Analytical Methodology

Residual	Methodology	Methods[1,2]
Free chlorine	Amperometric Titration	4500-Cl D
	DPD Ferrous Titrimetric	4500-Cl F
	DPD Colorimetric	4500-Cl G
	Syringaldazine (FACTS)	4500-Cl H
Total chlorine	Amperometric Titration	4500-Cl D
	Amperometric Titration (low-level measurement)	4500-Cl E
	DPD Ferrous Titrimetric	4500-Cl F
	DPD Colorimetric	4500-Cl G
	Iodometric Electrode	4500-Cl I
Chlorine dioxide	Amperometric Titration	4500-ClO_2 C
	DPD Method	4500-ClO_2 D
	Amperometric Titration	4500-ClO_2 E
Ozone	Indigo method	4500-O_3 B[3]

[1]Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998 (any of the three editions may be used), American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

[2]Other analytical test procedures are contained within Technical Notes on Drinking Water Methods, EPA-600/R- 94-173, October 1994, which is available as NTIS PB95-104766.

[3]Standard Methods for the Examination of Water and Wastewater, 18th edition (1992) and 19th edition (1995), (either edition may be used); American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.

b. Monitoring requirements. A public water system that uses a surface water source or groundwater source under the influence of surface water must monitor in accordance with this paragraph or some interim requirements required by the department, until filtration is installed.

(1) Turbidity.

1. Routine turbidity monitoring requirements. Turbidity measurements as required by 43.5(3) must be performed on representative samples of the system's filtered water every four hours (or more frequently) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a calibration protocol approved by the department and audited for compliance during sanitary surveys. Major elements of the protocol shall include, but are not limited to: method of calibration, calibration frequency, calibration standards, documentation, data collection and data reporting. For any systems using slow sand filtration or filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the department may reduce the sampling frequency to once per day if it determines that less frequent monitoring is sufficient to indicate effective filtration performance. For systems serving 500 or fewer persons, the department may reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the department determines that less frequent monitoring is sufficient to indicate effective filtration performance. Approval shall be based upon documentation provided by the system, acceptable to the department and pursuant to the conditions of an operation permit.

2. Turbidity monitoring requirements for population greater than 100,000. A supplier of water serving a population or population equivalent of greater than 100,000 persons shall provide a continuous or rotating cycle turbidity monitoring and recording device or take hourly grab samples to determine compliance with 43.5(3).

(2) Residual disinfectant.

1. Residual disinfectant entering the system. The residual disinfectant concentration of the water entering the distribution system shall be monitored continuously, and the lowest value recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but not to exceed five working days following the failure of the equipment. If acceptable to the department, systems serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies prescribed below:

Residual Disinfectant Samples Required of Surface Water or IGW PWS

System size (persons served)	Samples per day*
500 or fewer	1
501 to 1,000	2
1,001 to 2,500	3
2,501 to 3,300	4

*When more than one grab sample is required per day, the day's samples cannot be taken at the same time. The sampling intervals must be at a minimum of four-hour intervals.

If at any time the disinfectant concentration falls below 0.3 mg/L free residual or 1.5 mg/L total residual chlorine in a system using grab sampling in lieu of continuous monitoring, the system shall take a grab sample every four hours until the residual disinfectant concentration is equal to or greater than 0.3 mg/L free residual or 1.5 mg/L total residual chlorine.

2. Residual disinfectant in the system. The residual disinfectant concentration must be measured at least daily in the distribution system. Residual disinfectant measurements that are required as part of the total coliform bacteria sample collection under 567—paragraph 41.2(1)*"c"* shall be used to satisfy this requirement on the day(s) when a bacteria sample(s) is collected. The department may allow a public water system that uses both a groundwater source and a surface water source or a groundwater source under direct influence of surface water to take residual disinfectant samples

at points other than the total coliform sampling points, if these points are included as a part of the coliform sample site plan meeting the requirements of 567—paragraph 41.2(1)*"c"*(1)"1" and if the department determines that such points are representative of treated (disinfected) water quality within the distribution system. Heterotrophic plate count bacteria (HPC) may be measured in lieu of residual disinfectant concentration, using Method 9215B, Pour Plate Method, Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992. The time from sample collection to initiation of analysis shall not exceed eight hours. Samples must be kept below 10 degrees C during transit to the laboratory. All samples must be analyzed by a department-certified laboratory meeting the requirements of 567—Chapter 83.

43.5(5) *Reporting requirements.* Public water supplies shall report the results of routine monitoring required to demonstrate compliance with 567—43.5(455B) and treatment technique violations as follows:

a. Waterborne disease outbreak. Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the department as soon as possible, but no later than by the end of the next business day.

b. Turbidity exceeds 5 NTU. If at any time the turbidity exceeds 5 NTU, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

c. Residual disinfectant entering distribution system below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine. If at any time the residual falls below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine in the water entering the distribution system, the system must notify the department as soon as possible, but no later than by the end of the next business day. The system also must notify the department by the end of the next business day whether or not the residual was restored to at least 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine within four hours.

d. Routine monitoring reporting requirements. Routine monitoring results shall be provided as part of the monthly operation reports in accordance with 567—40.3(455B) and 567—subrule 42.4(3).

43.5(6) *Filter backwash recycle provisions.* All surface water or influenced groundwater systems that employ conventional filtration or direct filtration treatment and that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements of this subrule.

a. Reporting. A system must notify the department in writing by December 8, 2003, if the system recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification must include the following information at a minimum:

(1) A plan schematic showing the origin of all flows which are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are reintroduced back into the treatment plant.

(2) Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experience in the previous year (in gpm), design flow for the treatment plant (in gpm), the minimum plant rate (in gpm) during which the filter backwash will be recycled, and department-approved operating capacity for the plant where the department has made such determinations.

b. Treatment technique requirement. Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of a system's existing conventional or direct filtration system as defined in 567—40.2(455B) or at an alternate location approved by the department by June 8, 2004. However, if capital improvements are required to modify the recycle location to meet this requirement, all capital improvements must be completed no later than June 8, 2006.

c. Record keeping. The system must collect and retain on file the recycle flow information specified below for review and evaluation by the department beginning June 8, 2004.

(1) A copy of the recycle notification and information submitted to the department under paragraph *"a"* of this subrule.

(2) A list of all recycle flows and the frequency with which they are returned.

(3) The average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes.

(4) The typical filter run length and a written summary of how filter run length is determined.

(5) The type of treatment provided for the recycle flow.

(6) Data on the physical dimensions of the equalization and treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used including average dose and frequency of use, and frequency at which solids are removed, if applicable.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—43.6(455B) Residual disinfectant and disinfection byproduct precursors.

43.6(1) *Residual disinfectant.*

a. Applicability.

(1) CWS and NTNC systems. This rule establishes criteria under which CWS and NTNC public water supply systems that add a chemical disinfectant to the water in any part of the drinking water treatment process or that provide water that contains a chemical disinfectant must modify their practices to meet the MCLs listed in 567—41.6(455B), the maximum residual disinfectant levels (MRDL) listed in this subrule, and treatment technique requirements for disinfection byproduct precursors listed in subrule 43.6(3).

(2) TNC systems with chlorine dioxide disinfection. This rule establishes criteria under which TNC public water supply systems that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the chlorine dioxide MRDL listed in paragraph 43.6(1)*"b."*

(3) Compliance dates. Compliance dates for this rule are based upon the source water type and the population served. Systems are required to comply with this rule as follows, unless otherwise noted:

1. Surface water and IGW CWS and NTNC. CWS and NTNC systems using surface water or groundwater under the direct influence of surface water (IGW) in whole or in part and which serve 10,000 or more persons must comply with this rule beginning January 1, 2002. CWS and NTNC surface water or IGW systems serving fewer than 10,000 persons must comply with this rule beginning January 1, 2004.

2. Groundwater CWS and NTNC. CWS and NTNC systems using only groundwater not under the direct influence of surface water must comply with this rule beginning January 1, 2004.

3. TNC using chlorine dioxide. TNC systems serving over 10,000 persons and using surface water or groundwater under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this rule beginning January 1, 2002. TNC systems serving 10,000 persons or less, regardless of source water type, and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this rule beginning January 1, 2004.

4. Extension of compliance period for GAC or membrane technology installation. A system that is installing GAC or membrane technology to comply with this rule may apply to the department for an extension of up to 24 months past the dates in 43.6(1)*"a"*(3), but not beyond December 31, 2003. In granting the extension, the department will set a schedule for compliance and may specify any interim measures the system must take. Failure to meet a compliance schedule or interim treatment requirements constitutes a violation of the public drinking water supply rules, requires public notification per 567—subrule 42.1(1), and may result in an administrative order.

(4) Control of residual disinfectants. Notwithstanding the MRDLs in this rule, systems may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(5) Consecutive systems. Consecutive systems that provide water containing a disinfectant or oxidant are required to comply with this rule.

(6) Systems with multiple water sources. Systems with water sources that are used independently from each other, are not from the same source as determined by the department, or do not go through identical treatment processes are required to conduct the monitoring for the applicable disinfectants or oxidants and disinfection byproducts during operation of each source. The system must comply with this rule during the use of each water source.

b. Maximum residual disinfectant levels. Maximum residual disinfectant levels (MRDLs) are as follows:

Disinfection Residual	MRDL (mg/L)
Chloramines	4.0 as Cl_2
Chlorine	4.0 as Cl_2
Chlorine dioxide	0.8 as ClO_2

c. Monitoring requirements for residual disinfectants.

(1) General requirements.

1. Systems must take all samples during normal operating conditions. If the system does not use the disinfectant or oxidant on a daily basis, the system must conduct the required daily monitoring each day the disinfectant or oxidant is used, and any required monthly monitoring during those months in which the disinfectant or oxidant is used during any portion of the month.

2. Failure to monitor in accordance with the monitoring plan required under 43.6(1)*"c"*(1)"5" is a monitoring violation.

3. Failure to monitor is a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs.

4. Systems may use only data collected under the provisions of this rule or of 567—41.6(455B) to qualify for reduced monitoring.

5. Systems required to monitor under the provisions of this rule or of 567—41.6(455B) must develop and implement a monitoring plan, in accordance with 567—paragraph 41.6(1)*"c"*(1)"6."

(2) Chlorine and chloramines.

1. Routine monitoring. Community and nontransient noncommunity water systems that use chlorine or chloramines must measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in 567—subrule 41.2(1). Surface water and groundwater under the direct influence of surface water systems may use the results of residual disinfectant concentration sampling conducted under 43.5(4)*"b"*(2)"2," in lieu of taking separate samples.

2. Reduced monitoring. Chlorine and chloramine monitoring may not be reduced.

(3) Chlorine dioxide.

1. Routine monitoring. Any public water supply systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by 43.6(1)*"c"*(3)"2," in addition to the sample required at the entrance to the distribution system.

2. Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples.

- If chlorine dioxide or chloramines are used to maintain a residual disinfectant in the distribution system, or if chlorine is used to maintain a residual disinfectant in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least six hours.
- If chlorine is used to maintain a residual disinfectant in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample at each of the following locations: as close to the first

customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

3. Reduced monitoring. Chlorine dioxide monitoring may not be reduced.

d. Analytical requirements for residual disinfectants.

(1) Analytical methods. Systems must measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in the following table:

Approved Methods for Residual Disinfectant Compliance Monitoring

Methodology	Standard Methods	Other Method	Residual measured[1]			
			Free Chlorine	Combined Chlorine	Total Chlorine	Chlorine Dioxide
Amperometric Titration	4500-Cl D	ASTM: D 1253-86 (96), 03	X	X	X	
Low Level Amperometric Titration	4500-Cl E				X	
DPD Ferrous Titrimetric	4500-Cl F		X	X	X	
DPD Colorimetric	4500-Cl G		X	X	X	
Syringaldazine (FACTS)	4500-Cl H		X			
Iodometric Electrode	4500-Cl I				X	
DPD	4500-ClO_2 D					X
Amperometric Method II	4500-ClO_2 E					X
Lissamine Green Spectrophotometric		EPA: 327.0 Rev. 1.1				X

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC 20408.

The following method is available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428:

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996: Method D 1253-86.

The following methods are available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005:

Standard Methods for the Examination of Water and Wastewater, 19th and 20th editions, American Public Health Association, 1995 and 1998, respectively (both editions are acceptable): Methods: 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO_2 D, 4500-ClO_2 E.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

"Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry, Revision 1.1," USEPA, May 2005, EPA 815-R-05-008.

[1]X indicates method is approved for measuring specified residual disinfectant. Free chlorine or total chlorine may be measured for demonstrating compliance with the chlorine MRDL, and combined chlorine or total chlorine may be measured for demonstrating compliance with the chloramine MRDL.

(2) Test kit use. Systems may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide by using DPD colorimetric test kits acceptable to the department. Free and total chlorine residual disinfectant concentrations may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five days.

(3) Operator requirement. Measurements for residual disinfectant concentration shall be conducted by a Grade A through IV operator meeting the requirements of 567—Chapter 81, any person under the direct supervision of a Grade A through IV operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83.

e. Compliance requirements for residual disinfectants.

(1) General requirements.

1. When compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2. All samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

(2) Chlorine and chloramines.

1. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under 43.6(1)*"c"*(2). If the average covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

2. In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to 567—paragraph 42.4(3)*"d"* must clearly indicate which residual disinfectant was analyzed for each sample.

(3) Chlorine dioxide.

1. Acute violations. Compliance must be based on consecutive daily samples collected by the system under 43.6(1)*"c"*(3). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one or more of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public pursuant to the Tier 1 requirements in 567—subrule 42.1(2) in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."* Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system must notify the public of the violation in accordance with the provisions for Tier 1 violations in 567—subrule 42.1(2), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

2. Nonacute violations. Compliance must be based on consecutive daily samples collected by the system under 43.6(1)*"c"*(3). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the Tier 2 requirements in 567—subrule 42.1(3), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."* Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system must notify the public of the violation in accordance with the provisions for Tier 2 violations in 567—subrule 42.1(3), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

f. Reporting requirements for disinfectants. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for disinfectants are listed in 567—subparagraph 42.4(3)*"d"*(3).

43.6(2) *Disinfection byproduct precursors.*

a. Applicability.

(1) Surface water or IGW CWS and NTNC systems with conventional filtration. This rule establishes criteria under which surface water or influenced groundwater CWS and NTNC public water supply systems using conventional filtration treatment, as defined in 567—40.2(455B), that add a chemical disinfectant to the water in any part of the drinking water treatment process or which provide water that contains a chemical disinfectant must modify their practices to meet the MCLs listed in 567—41.6(455B) and the maximum residual disinfectant levels (MRDL) and treatment technique requirements for disinfection byproduct precursors listed in this rule.

(2) CWS and NTNC systems using ozone treatment. CWS and NTNC systems that use ozone in their treatment process must comply with the bromide requirements of this subrule.

(3) Compliance dates. Compliance dates for this rule are based upon the population served. CWS and NTNC systems using surface water or groundwater under the direct influence of surface water in whole or in part and which serve 10,000 or more persons must comply with this rule beginning January 1, 2002; while those systems serving fewer than 10,000 persons must comply with this rule beginning January 1, 2004.

(4) The department may require groundwater systems to conduct monitoring for disinfection byproduct precursors as a part of an operation permit.

b. Monitoring requirements for disinfection byproduct precursors.

(1) Routine monitoring for total organic carbon (TOC).

1. Surface water and groundwater under the direct influence of surface water systems which use conventional filtration treatment must monitor each treatment plant for total organic carbon (TOC) no later than at the point of combined filter effluent turbidity monitoring and representative of the treated water. The systems must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired set of source water and treated water samples and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

2. Surface water and groundwater under the direct influence of surface water systems which do not use conventional filtration treatment must conduct the TOC monitoring under 43.6(2)*"b"*(1)"1" in order to qualify for reduced disinfection byproduct monitoring for TTHM and HAA5 under 567—paragraph 41.6(1)*"c"*(4)"2." The source water TOC running annual average must be less than or equal to 4.0 mg/L based on the most recent four quarters of monitoring on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(2) Reduced monitoring. The department may allow surface water and groundwater under the direct influence of surface water systems with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, to reduce monitoring for both TOC and alkalinity to one set of paired samples and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC is greater than or equal to 2.0 mg/L.

(3) Bromide. The department may allow systems required to analyze for bromate to reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

(4) The department may assign disinfection byproduct precursor monitoring prior to the compliance dates in 43.6(2)*"a"*(3) as part of an operation permit.

c. Analytical requirements for disinfection byproduct precursors.

(1) Analytical methods. Systems required to monitor disinfectant byproduct precursors must use the following methods, which must be conducted by a certified laboratory pursuant to 567—Chapter 83, unless otherwise specified.

Approved Methods for Disinfection Byproduct Precursor Monitoring[1]

Analyte	Methodology	EPA	Standard Methods	ASTM	Other
Alkalinity[6]	Titrimetric		2320B	D 1067-92B	
	Electrometric titration				I-1030-85
Bromide	Ion chromatography	300.0			
		300.1			
		317.0 Rev. 2.0			
		326.0			
				D 6581-00	
Dissolved Organic Carbon[2]	High temperature combustion		5310B or 5310B-00		
	Persulfate-UV or heated-persulfate oxidation		5310C or 5310C-00		
	Wet oxidation		5310D or 5310D-00		
		415.3 Rev. 1.1			
pH[3]	Electrometric	150.1	4500-H^+-B	D 1293-84	
		150.2			
Total Organic Carbon[4]	High temperature combustion		5310B or 5310B-00		
	Persulfate-UV or heated-persulfate oxidation		5310C or 5310C-00		
	Wet oxidation		5310D or 5310D-00		
		415.3 Rev. 1.1			
Ultraviolet Absorption at 254 nm[5]	UV absorption		5910B or 5910B-00		
		415.3 Rev. 1.1			

[1]The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC 20408.

The following methods are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428:

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996: Method D 1067-92B and Method D 1293-84.

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2001 (or any year containing the cited version): Method D 6581-00.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

"Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0," EPA-600/R-98/118, 1997 (NTIS, PB98-169196): Method 300.1.

Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983, (NTIS PB84-128677): Methods 150.1 and 150.2.

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600/R-93/100, August 1993, (NTIS PB94-121811): Method 300.0.

"Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis, Revision 2.0," USEPA, July 2001, EPA 815-B-01-001: Method 317.0.

"Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis, Revision 1.0," USEPA, June 2002, EPA 815-R-03-007: Method 326.0.

"Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water, Revision 1.1," USEPA, February 2005, EPA/600/R-05/055: Method 415.3 Revision 1.1.

The following methods are available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005:

Standard Methods for the Examination of Water and Wastewater, 19th edition, American Public Health Association, 1995: Methods: 2320B (20th edition, 1998, is also accepted for this method), 4500-H^+-B, and 5910B.

Standard Methods for the Examination of Water and Wastewater, Supplement to the 19th edition, American Public Health Association, 1996: Methods: 5310B, 5310C, and 5310D.

For method numbers ending "-00", the year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that are IBR-approved.

Method I-1030-85 is available from the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225-0425.

[2]Dissolved Organic Carbon (DOC). DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location, prior to the addition of any disinfectant or oxidant by the system. Prior to analysis, DOC samples must be filtered through a 0.45 µ pore-diameter filter, as soon as practical after sampling, not to exceed 48 hours. After filtration, DOC samples must be acidified to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified DOC samples must be analyzed within 28 days. Inorganic carbon must be removed from the samples prior to analysis. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet a DOC concentration of <0.5 mg/L.

[3]pH must be measured by a laboratory certified by the department to perform analysis under 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81.

[4]Total Organic Carbon (TOC). Inorganic carbon must be removed from the samples prior to analysis. TOC samples may not be filtered prior to analysis. TOC samples must be acidified at the time of sample collection to achieve a pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified TOC samples must be analyzed within 28 days.

[5]Ultraviolet Absorption at 254 nm (UV_{254}). DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location, prior to the addition of any disinfectant or oxidant by the system. UV absorption must be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV_{254} samples must be filtered through a 0.45 µ pore-diameter filter. The pH of UV_{254} samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours.

[6]Alkalinity must be measured by a laboratory certified by the department to perform analysis under 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81. Only the listed titrimetric methods are acceptable.

(2) SUVA. Specific Ultraviolet Absorbance (SUVA) is equal to the UV absorption at 254nm (UV_{254}) (measured in m^{-1}) divided by the dissolved organic carbon (DOC) concentration (measured as mg/L). In order to determine SUVA, it is necessary to separately measure UV_{254} and DOC. When determining SUVA, systems must use the methods stipulated in subparagraph 43.6(1)*"c"*(1) to measure DOC and UV_{254}. SUVA must be determined on water prior to the addition of disinfectants/oxidants by the system. DOC and UV_{254} samples used to determine an SUVA value must be taken at the same time and at the same location.

(3) Magnesium. All methods approved for magnesium in 567—subparagraph 41.3(1)*"e"*(1) are approved for use in measuring magnesium under this rule.

d. Compliance requirements for disinfection byproduct precursors.

(1) General requirements. All samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

(2) Compliance determination. Compliance must be determined as specified by 43.6(3)*"c."* The department may assign monitoring through an operation permit, or systems may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in 43.6(3)*"b"*(2), and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to 43.6(3)*"b"*(3) and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements anytime after the compliance date. For systems required to meet Step 1 TOC removals, if the value calculated under 43.6(3)*"c"*(1)"4" is less than 1.00, the system is in violation of the treatment technique requirements and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

e. Reporting requirements for disinfection byproduct precursors. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for disinfection byproduct precursors are listed in 567—subparagraph 42.4(3)*"d"*(4).

43.6(3) *Treatment technique for control of disinfection byproduct precursors.*

a. Applicability.

(1) Systems using surface water or groundwater under the direct influence of surface water and conventional filtration treatment (as defined in 567—40.2(455B)) must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in paragraph *"b"* of this subrule unless the system meets at least one of the alternative compliance criteria listed in 43.6(3)*"a"*(2) or (3).

(2) Alternative compliance criteria for enhanced coagulation and enhanced softening systems. Systems using surface water or groundwater under the direct influence of surface water and conventional filtration treatment may use the alternative compliance criteria in 43.6(3)*"a"*(2)"1" through "6" to comply with this subrule in lieu of complying with 43.6(3)*"b."* Systems must still comply with monitoring requirements in 43.6(2)*"b."*

1. The system's source water TOC level, measured according to 43.6(2)*"c"*(1), is less than 2.0 mg/L, calculated quarterly as a running annual average.

2. The system's treated water TOC level, measured according to 43.6(2)*"c"*(1), is less than 2.0 mg/L, calculated quarterly as a running annual average.

3. The system's source water TOC level, measured according to 43.6(2)*"c"*(1), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to 43.6(2)*"c"*(1), is greater than 60 mg/L as $CaCO_3$, calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in 567—subparagraph 41.6(1)*"a"*(3) and in 43.6(1)*"a"*(3) and 43.6(2)*"a"*(3), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in 567—subparagraph 41.6(1)*"a"*(3) and in 43.6(1)*"a"*(3) and 43.6(2)*"a"*(3), to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the department for approval not later than the effective date for compliance in 567—subparagraph 41.6(1)*"a"*(3) and

in 43.6(1)*"a"*(3) and 43.6(2)*"a"*(3). These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a treatment technique violation.

4. The TTHM and HAA5 running annual averages are less than or equal to 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

5. The system's source water SUVA, prior to any treatment and measured monthly according to 43.6(2)*"c,"* is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

6. The system's finished water SUVA, measured monthly according to 43.6(2)*"c,"* is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(3) Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by 43.6(3)*"b"*(2) may use the alternative compliance criteria in 43.6(3)*"a"*(3)"1" and "2" in lieu of complying with 43.6(3)*"b."* Systems must still comply with monitoring requirements in 43.6(2)*"b."*

1. Softening that lowers the treated water alkalinity to less than 60 mg/L as $CaCO_3$, measured monthly according to 43.6(2)*"c"* and calculated quarterly as a running annual average.

2. Softening that removes at least 10 mg/L of magnesium hardness as $CaCO_3$, measured monthly and calculated quarterly as a running annual average.

b. Enhanced coagulation and enhanced softening performance requirements.

(1) Systems must achieve the percent reduction of TOC specified in 43.6(3)*"b"*(2) between the source water and the combined filter effluent, unless the department approves a system's request for alternate minimum TOC removal (Step 2 requirements under 43.6(3)*"b"*(3)).

(2) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with 43.6(2)*"c."* Systems using softening are required to meet the Step 1 TOC reductions in the right-hand column (Source water alkalinity > 120 mg/L) for the specified source water TOC:

Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced Softening for Surface Water or IGW Systems Using Conventional Treatment[1,2]

	Source water Alkalinity, mg/L as $CaCO_3$		
Source water TOC, mg/L	0-60	>60-120	>120[3]
>2.0 - 4.0	35.0%	25.0%	15.0%
>4.0 - 8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

[1]Systems meeting at least one of the conditions in 43.6(3)*"a"*(2)"1" to "6" are not required to operate with enhanced coagulation.

[2]Softening systems meeting one of the alternative compliance criteria in 43.6(3)*"a"*(3) are not required to operate with enhanced softening.

[3]Systems practicing softening must meet the TOC removal requirements in this column.

(3) Surface water and groundwater under the influence of surface water systems using conventional treatment that cannot achieve the Step 1 TOC removals required by 43.6(3)*"b"*(2) due to water quality parameters or operational constraints must apply to the department for approval of alternative minimum Step 2 TOC removal requirements submitted by the system within three months of failure to achieve the TOC removals required by 43.6(3)*"b"*(2). If the department approves the alternative minimum Step 2 TOC removal requirements, the department may make those requirements retroactive for the purposes of determining compliance. The system must meet the Step 1 TOC removals contained in 43.6(3)*"b"*(2) until the department approves the alternate minimum Step 2 TOC removal requirements.

(4) Alternate minimum Step 2 TOC removal requirements. Applications made to the department by enhanced coagulation systems for approval of alternate minimum Step 2 TOC removal requirements

under 43.6(3)*"b"*(3) must include, as a minimum, results of bench-scale or pilot-scale testing conducted under 43.6(3)*"b"*(4)"1" below and be used to determine the alternate enhanced coagulation level.

1. Alternate enhanced coagulation level. Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in 43.6(3)*"b"*(4)"1" to "5" such that an incremental addition of 10 mg/L of alum (or equivalent amount of ferric salt) results in a TOC removal of less than or equal to 0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the department, this minimum requirement supersedes the minimum TOC removal required by the table in 43.6(3)*"b"*(2). This requirement will be effective until such time as the department approves a new value based on the results of a new bench-scale or pilot-scale test. Failure to achieve department-set alternative minimum TOC removal levels is a treatment technique violation.

2. Bench-scale or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/L increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

Enhanced Coagulation Step 2 Target pH

Alkalinity (mg/L as $CaCO_3$)	Target pH
0-60	5.5
>60-120	6.3
>120-240	7.0
>240	7.5

3. For waters with alkalinities of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (or equivalent addition of iron coagulant) is reached.

4. The system may operate at any coagulant dose or pH necessary (consistent with other public drinking water rules in 567—Chapters 41 through 43) to achieve the minimum TOC percent removal approved under 43.6(3)*"b"*(3).

5. If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the department for a waiver of enhanced coagulation requirements.

c. Compliance calculations.

(1) Surface water or groundwater under the influence of surface water systems other than those identified in 43.6(3)*"a"*(2) or (3) must comply with requirements contained in 43.6(3)*"b"*(2) or (3). Systems must calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

1. Step 1: Determine actual monthly TOC percent removal using the following equation, to two decimal places:

$$\text{Actual monthly TOC percent removal} = 1 - \left(\frac{\text{treated water TOC}}{\text{source water TOC}} \right) \times 100$$

2. Step 2: Determine the required monthly TOC percent removal from either 43.6(3)*"b"*(2) or (3).

3. Step 3: Divide the "actual monthly TOC percent removal" value (from Step 1) by the "required monthly TOC percent removal" value (from Step 2). Determine this value for each of the last 12 months.

$$\text{Monthly percent removal ratio} = \frac{\text{actual monthly TOC percent removal}}{\text{required monthly TOC percent removal}}$$

4. Step 4: Add together the "monthly percent removal ratio" values from Step 3 for each of the last 12 months and divide by 12, to determine the annual average value.

$$\text{Annual average} = \frac{\Sigma \text{ monthly percent removal ratio}}{12}$$

5. Step 5: If the "annual average" value calculated in Step 4 is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(2) Systems may use the provisions in 43.6(3)*"c"*(2)"1" through "5" in lieu of the calculations in 43.6(3)*"c"*(1)"1" through "5" to determine compliance with TOC percent removal requirements.

1. In any month that the system's treated or source water TOC level, measured according to 43.6(2)*"c"*(1), is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

2. In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness as $CaCO_3$, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

3. In any month that the system's source water SUVA, prior to any treatment and measured according to 43.6(2)*"c"*(2), is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

4. In any month that the system's finished water SUVA, measured according to 43.6(2)*"c"*(2), is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

5. In any month that a system using enhanced softening lowers alkalinity below 60 mg/L as $CaCO_3$, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

(3) Surface water or groundwater under the direct influence of surface water systems using conventional treatment may also comply with the requirements of this subrule by meeting the criteria in 43.6(3)*"a"*(2) or (3).

d. Treatment technique requirements for disinfection byproduct precursors. The treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems, for surface water or groundwater under the direct influence of surface water systems using conventional filtration treatment, are enhanced coagulation or enhanced softening.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—43.7(455B) Lead and copper treatment techniques.

43.7(1) *Corrosion control treatment for lead and copper control.*

a. Applicability. Systems shall complete the applicable corrosion control treatment requirements by the deadlines specified in the following rules:

(1) Large systems serving more than 50,000 persons. A large system (serving greater than 50,000 persons) shall complete the corrosion control treatment steps specified in 43.7(1)*"d,"* unless the system is deemed to have optimized corrosion control under 43.7(1)*"b"*(2) or (3).

(2) Small and medium-size systems serving 50,000 or fewer persons. A small system (serving less than or equal to 3,300 persons) or a medium-size system (serving greater than 3,300 and less than or equal to 50,000 persons) shall complete the corrosion control treatment steps specified in 43.7(1)*"e,"* unless the system has optimized corrosion control under 43.7(1)*"b"*(1), (2), or (3).

b. Determination that a system has optimized corrosion control. A public water supply system has optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this subrule if the system satisfies one of the criteria specified in subparagraphs

43.7(1)*"b"*(1) through (3). Any such system deemed to have optimized corrosion control under this paragraph and which has treatment in place shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the department determines appropriate to ensure optimal corrosion control treatment is maintained.

(1) A small or medium-size water supply system has optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods, conducted in accordance with 567—paragraph 41.4(1)*"c."*

(2) Any public water supply system may be deemed to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the department that it has conducted activities equivalent to the corrosion control steps applicable to such system under this subrule. If the department makes this determination, it shall provide the water supply system with written notice explaining the basis for its decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with 43.7(2)*"f."* Systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with the department-designated optimal water quality control parameters in accordance with paragraph 43.7(1)*"g"* and continue to conduct lead and copper tap and water quality parameter sampling in accordance with 567—paragraph 41.4(1)*"c"*(4)"3" and 567—subparagraph 41.4(1)*"d"*(4), respectively. A system shall provide the department with the following information in order to support a determination under this paragraph:

1. The results of all test samples collected for each of the water quality parameters in 43.7(2)*"c"*(3);

2. A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in 43.7(2)*"c"*(1), the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment;

3. A report explaining how corrosion control was installed and how it is being maintained to ensure minimal lead and copper concentrations at consumers' taps; and

4. The results of tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* at least once every six months for one year after corrosion control has been installed.

(3) Any water system has optimized corrosion control if it submits results of tap water monitoring conducted in accordance with 567—paragraph 41.4(1)*"c"* and source water monitoring conducted in accordance with 567—paragraph 41.4(1)*"e"* that demonstrate for two consecutive six-month monitoring periods that the difference between the 90th percentile tap water lead level computed under 567—subparagraph 41.4(1)*"b"*(3) and the highest source water lead concentration is less than the practical quantitation level for lead specified in 567—paragraph 41.4(1)*"g."*

1. Those systems whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control under this paragraph if the 90th percentile tap water lead level is less than or equal to the practical quantitation level for lead for two consecutive six-month monitoring periods.

2. Any water system deemed to have optimized corrosion control in accordance with this paragraph shall continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in 567—subparagraph 41.4(1)*"c"*(3) and collecting the samples at times and locations specified in 567—paragraph 41.4(1)*"c"*(4)"4," fourth bulleted paragraph.

3. Any water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the department in writing pursuant to 567—subparagraph 42.4(2)*"a"*(3) of any change in treatment or the addition of a new source. The department may require any such system to conduct additional monitoring or to take other action the department deems appropriate to ensure that the system maintains minimal levels of corrosion in the distribution system.

4. Unless a system meets the copper action level, it is not deemed to have optimized corrosion control under this paragraph and shall implement corrosion control treatment pursuant to 43.7(1)*"b"*(3)"5."

5. Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this paragraph shall implement corrosion control treatment in accordance with

the deadlines in paragraph 43.7(1)*"e."* Any such large system shall adhere to the schedule specified in that paragraph for medium-size systems, with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control under this paragraph.

c. Requirements to recommence corrosion control steps. Any small or medium-size water system that is required to complete the corrosion control steps due to its exceedance of the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two consecutive monitoring periods conducted pursuant to 567—paragraph 41.4(1)*"c"* and submits the results to the department. If any such water system thereafter exceeds the lead or copper action level during any monitoring period, the system shall recommence completion of the applicable treatment steps, beginning with the first treatment step which was not previously completed in its entirety. The department may require a system to repeat treatment steps previously completed by the system when it is determined by the department that this is necessary to implement properly the treatment requirements of this rule. The department will notify the system in writing of such a determination and explain the basis for its decision. The requirement for any small or medium-size system to implement corrosion control treatment steps in accordance with 43.7(1)*"e"* (including systems deemed to have optimized corrosion control under 43.7(1)*"b"*(1)) is triggered whenever any small or medium-size system exceeds the lead or copper action level.

d. Treatment steps and deadlines for large systems. Except as provided in 43.7(1)*"b"*(2) or (3), large systems shall complete the following corrosion control treatment steps (described in the referenced portions of 43.7(1)*"b,"* subrule 43.7(2), and 567—paragraphs 41.4(1)*"c"* and *"d"*) by the dates indicated below.

(1) Step 1. The system shall conduct initial monitoring pursuant to 567—paragraph 41.4(1)*"c"*(4)"1" and 567—subparagraph 41.4(1)*"d"*(2) during two consecutive six-month monitoring periods by January 1, 1993.

(2) Step 2. The system shall complete corrosion control studies pursuant to 43.7(2)*"c"* by July 1, 1994.

(3) Step 3. The department will designate optimal corrosion control treatment within six months of receiving the corrosion control study results (by January 1, 1995).

(4) Step 4. The system shall install optimal corrosion control treatment by January 1, 1997.

(5) Step 5. The system shall complete follow-up sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" and 567—subparagraph 41.4(1)*"d"*(3) by January 1, 1998.

(6) Step 6. The department will review installation of treatment and designate optimal water quality control parameters pursuant to 43.7(2)*"f"* by July 1, 1998.

(7) Step 7. The system shall operate in compliance with optimal water quality control parameters delineated by the department and continue to conduct tap sampling.

e. Treatment steps and deadlines for small and medium-size systems. Except as provided in 43.7(2), small and medium-size systems shall complete the following corrosion control treatment steps (described in subrule 43.7(2) and 567—paragraphs 41.4(1)*"c"* and *"d"*) by the indicated time periods listed below.

(1) Step 1. The system shall conduct initial tap sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"1" and 567—subparagraph 41.4(1)*"d"*(2) until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under 567—paragraph 41.4(1)*"c"*(4)"4." A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment under 43.7(2)*"a"* within six months after it exceeds one of the action levels.

(2) Step 2. Within 12 months after a system exceeds the lead or copper action level, the department may require the system to perform corrosion control studies under 43.7(2)*"b."* If the system is not required to perform such studies, the department will specify optimal corrosion control treatment under 43.7(2)*"d"* as follows: for medium-size systems, within 18 months after such system exceeds the lead or copper action level, and, for small systems, within 24 months after such system exceeds the lead or copper action level.

(3) Step 3. If a system is required to perform corrosion control studies under Step 2, the system shall complete the studies (under 43.7(2)*"c"*) within 18 months after such studies are required to commence.

(4) Step 4. If the system has performed corrosion control studies under Step 2, the department will designate optimal corrosion control treatment under 43.7(2)*"d"* within six months after completion of Step 3.

(5) Step 5. The system shall install optimal corrosion control treatment under 43.7(2)*"e"* within 24 months after such treatment is designated.

(6) Step 6. The system shall complete follow-up sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" and 567—subparagraph 41.4(1)*"d"*(3) within 36 months after optimal corrosion control treatment is designated.

(7) Step 7. The department will review the system's installation of treatment and designate optimal water quality control parameters pursuant to 43.7(2)*"f"* within six months after completion of Step 6.

(8) Step 8. The system shall operate in compliance with the department-designated optimal water quality control parameters under 43.7(2)*"f"* (and continue to conduct tap sampling as per 567—paragraph 41.4(1)*"c"*(4)"3" and 567—subparagraph 41.4(1)*"d"*(4)).

43.7(2) *Description of corrosion control treatment requirements.* Each public water supply system shall complete the corrosion control treatment requirements described below which are applicable to such systems under 43.7(1).

a. Public water supply system recommendation regarding corrosion control treatment. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small and medium-size water systems exceeding the lead or copper action level shall recommend installation of one or more of the corrosion control treatments listed in 43.7(2)*"c"* which the system believes constitute optimal corrosion control for that system. The department may require the system to conduct additional water quality parameter monitoring in accordance with 567—subparagraph 41.4(1)*"d"*(2) to assist in reviewing the system's recommendation.

b. Department decision to require studies of corrosion control treatment (applicable to small and medium-size systems). The department may require any small or medium-size system that exceeds the lead or copper action level to perform corrosion control studies under 43.7(2)*"c"* to identify optimal corrosion control treatment for the system.

c. Performance of corrosion control studies.

(1) Any public water supply system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment: alkalinity and pH adjustment; calcium hardness adjustment; and the addition of a phosphate or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

(2) The water system shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry and distribution system configuration.

(3) The public water supply system shall measure the following water quality parameters in any tests conducted under this paragraph before and after evaluating the corrosion control treatments listed above:

1. Lead;
2. Copper;
3. pH;
4. Alkalinity;
5. Calcium;
6. Conductivity;
7. Orthophosphate (when an inhibitor containing a phosphate compound is used);
8. Silicate (when an inhibitor containing a silicate compound is used);
9. Water temperature.

(4) The public water supply system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and outline such constraints with the following: data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality

characteristics; or data and documentation demonstrating that the water system has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

(5) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(6) On the basis of an analysis of the data generated during each evaluation, the water system shall recommend in writing to the department the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system shall provide a rationale for its recommendation along with all supporting documentation required by 43.7(2)*"c"*(1) through (5).

d. Department designation of optimal corrosion control treatment.

(1) Based upon consideration of available information including, where applicable, studies performed under 43.7(2)*"c"* and a system's recommended treatment alternative, the department will either approve the corrosion control treatment option recommended by the public water supply system, or designate alternative corrosion control treatment(s) from among those listed in 43.7(2)*"c."* The department will consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes (when designating optimal corrosion control treatment).

(2) The department will notify the public water supply system of its decision on optimal corrosion control treatment in writing and explain the basis for this determination. If the department requests additional information to aid its review, the public water supply system shall provide the information.

e. Installation of optimal corrosion control. Each public water supply system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated under 43.7(2)*"d."*

f. Department review of treatment and specification of optimal water quality control parameters.

(1) The department will evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the public water supply system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated in 43.7(2)*"d."* Upon reviewing the results of tap water and water quality parameter monitoring by the public water supply system, both before and after the system installs optimal corrosion control treatment, the department will designate the following:

1. A minimum value or a range of values for pH measured at each entry point to the distribution system;

2. A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than 7.0 unless meeting a pH level of 7.0 is not technologically feasible or is not necessary for the public water supply system to optimize corrosion control;

3. If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, necessary to form a passivating film on the interior walls of the pipes of the distribution system;

4. If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples; or

5. If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

(2) The values for the applicable water quality control parameters listed above shall be those which reflect optimal corrosion control treatment for the public water supply system. The department may designate values for additional water quality control parameters determined by the department to reflect optimal corrosion control for the system. The department will notify the system in writing of these determinations and explain the basis for its decisions.

g. Continued operation with optimized corrosion control and water quality parameter monitoring compliance determination. All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or

above minimum values or within ranges designated by the department under paragraph 43.7(2)*"f,"* in accordance with this paragraph for all samples collected under 567—subparagraphs 41.4(1)*"d"*(4) through (6). Compliance with the requirements of this paragraph shall be determined every six months, as specified under 567—subparagraph 41.4(1)*"d"*(4). A water system is out of compliance with the requirements of this paragraph for a six-month period if it has excursions for any department-specified parameter on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the department. Daily values are calculated as follows. The department has the discretion to invalidate results of obvious sampling errors from this calculation.

(1) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(2) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

(3) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

h. Modification of department treatment decisions. A determination of the optimal corrosion control treatment under 43.7(2)*"d"* or optimal water quality control parameters under 43.7(2)*"f"* may be modified. A request for modification by a public water supply system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination when it concludes that such change is necessary to ensure that the public water supply system continues to optimize corrosion control treatment. A revised determination will be made in writing, which will set forth the new treatment requirements, explain the basis for the decision, and provide an implementation schedule for completing the treatment modifications.

43.7(3) *Source water treatment requirements.* Public water supply systems shall complete the applicable source water monitoring and treatment requirements, as described in the referenced portions of 43.7(3)*"b,"* and in 567—paragraphs 41.4(1)*"c"* and *"e,"* by the following deadlines.

a. Deadlines for completing source water treatment steps.

(1) Step 1. A public water supply system exceeding the lead or copper action level shall complete lead and copper source water monitoring under 567—subparagraph 41.4(1)*"e"*(2) and make a written treatment recommendation to the department within six months after exceeding the lead or copper action level.

(2) Step 2. The department will make a determination regarding source water treatment pursuant to 43.7(3)*"b"*(2) within six months after submission of monitoring results under Step 1.

(3) Step 3. If installation of source water treatment is required, the system shall install the treatment pursuant to 43.7(3)*"b"*(3) within 24 months after completion of Step 2.

(4) Step 4. The public water supply system shall complete follow-up tap water monitoring under 567—paragraph 41.4(1)*"c"*(4)"2" and source water monitoring under 567—subparagraph 41.4(1)*"e"*(3) within 36 months after completion of Step 2.

(5) Step 5. The department will review the system's installation and operation of source water treatment and specify maximum permissible source water levels under 43.7(3)*"b"*(4) within six months after completion of Step 4.

(6) Step 6. The public water supply system shall operate in compliance with the specified maximum permissible lead and copper source water levels under 43.7(3)*"b"*(4) and continue source water monitoring pursuant to 567—subparagraph 41.4(1)*"e"*(4).

b. Description of source water treatment requirements.

(1) System treatment recommendation. Any system which exceeds the lead or copper action level shall recommend in writing to the department the installation and operation of one of the source water treatments listed in 43.7(3)*"b"*(2). A system may recommend that no treatment be installed based upon

a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(2) Source water treatment determinations. The department will complete an evaluation of the results of all source water samples submitted by the public water supply system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the department determines that treatment is needed, the department will require installation and operation of the source water treatment recommended by the public water supply system or require the installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening or coagulation/filtration. If the department requests additional information to aid in its review, the water system shall provide the information by the date specified in its request. The department will notify the system in writing of its determination and set forth the basis for its decision.

(3) Installation of source water treatment. Public water supply systems shall properly install and operate the source water treatment designated by the department under 43.7(3)*"b"*(2).

(4) Department review of source water treatment and specification of maximum permissible source water levels. The department will review the source water samples taken by the water supply system both before and after the system installs source water treatment and determine whether the public water supply system has properly installed and operated the designated source water treatment. Based upon its review, the department will designate maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment (properly operated and maintained). The department will notify the public water supply system in writing and explain the basis for its decision.

(5) Continued operation and maintenance. Each public water supply system shall maintain lead and copper levels below the maximum permissible concentrations designated by the department at each sampling point monitored in accordance with 567—paragraph 41.4(1)*"e."* The system is out of compliance with this paragraph if the level of lead or copper at any sampling point is greater than the maximum permissible designated concentration.

(6) Modification of source water treatment decisions. The department may modify its determination of the source water treatment under 43.7(3)*"b"*(6), or maximum permissible lead and copper concentrations for finished water entering the distribution system under 43.7(3)*"b"*(4). A request for modification by a public water supply system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination where it concludes that such change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water. A revised determination will be made in writing, set forth the new treatment requirements, explain the basis for the decision, and provide an implementation schedule for completing the treatment modifications.

43.7(4) *Lead service line replacement requirements.*

a. Applicability. Public water supply systems that fail to meet the lead action level in tap samples taken pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" after installing corrosion control or source water treatment (whichever sampling occurs later) shall replace lead service lines in accordance with the requirements of this subrule. If a system is in violation of 43.7(1) and 43.7(3) for failure to install source water or corrosion control treatment, the department may require the system to commence lead service line replacement under this subrule after the date by which the system was required to conduct monitoring under 567—paragraph 41.4(1)*"c"*(4)"2" has passed.

b. Lead service line replacement schedule. A public water supply system shall replace annually at least 7 percent of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based upon a materials evaluation, including the evaluation required under 567—subparagraph 41.4(1)*"c"*(1), and relevant legal authorities regarding the portion owned by the system such as contracts and local ordinances. The first year of lead service

line replacement shall begin on the date the action level was exceeded in tap sampling referenced in 43.7(4)*"a."*

c. Exemption to lead service line replacement requirement. A public water supply system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to 567—paragraph 41.4(1)*"c"*(2)"3," is less than or equal to 0.015 mg/L.

d. Lead service line replacement requirements. A water system shall replace that portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately owned portion of the line, nor is it required to replace the privately owned portion of the line where the owner chooses not to pay the cost of replacing the privately owned portion of the line, or where replacing the privately owned portion would be precluded by state, local, or common law. A water system that does not replace the entire length of the service line shall complete the following tasks.

(1) Notification of residents. At least 45 days prior to commencing with the partial replacement of a lead service line, the water system shall provide to the resident(s) of all buildings served by the line notice explaining that the resident(s) may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers may take to minimize their exposure to lead. The department may allow the water system to provide this notice less than 45 days prior to commencing partial lead service line replacement where such replacement is in conjunction with emergency repairs. In addition, the water system shall inform the resident(s) served by the line that the system will, at the system's expense, collect from each partially replaced lead service line a sample that is representative of the water in the service line for analysis of lead content, as prescribed under 567—paragraph 41.4(1)*"c"*(2)"3," within 72 hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner and the resident(s) served by the line within three business days of receiving the results. Mailed notices postmarked within three business days of receiving the results shall be considered "on time."

(2) Notification methods. The water system shall provide the information required by subparagraph 43.7(4)*"d"*(1) to the residents of individual dwellings by mail or by other methods approved by the department. In instances where multifamily dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

e. Lead service line control—department review. Rescinded IAB 1/7/04, effective 2/11/04.

f. Lead service line replacement schedule. The department may require a public water supply system to replace lead service lines on a shorter schedule than that required by this subrule, taking into account the number of lead service lines in the system, where such a shorter replacement schedule is feasible. The department will make this determination in writing and notify the system of its finding within six months after the system is triggered into lead service line replacement based on monitoring referenced in 43.7(4)*"a."*

g. Cessation of lead service line replacement. Any public water supply system may cease replacing lead service lines whenever first draw samples collected pursuant to 567—paragraph 41.4(1)*"c"*(2)"2" meet the lead action level during each of two consecutive monitoring periods and the system submits the results. If the first draw tap samples collected in any such water system thereafter exceed the lead action level, the system shall recommence replacing lead service lines, as detailed in 43.7(4)*"b."*

h. Lead service line replacement reporting requirements. To demonstrate compliance with 43.7(4)*"a"* through *"d,"* a system shall report the information specified in 567—paragraph 42.4(2)*"e."*
[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—43.8(455B) Viability assessment.

43.8(1) *Definitions specific to viability assessment.*

"New system" for viability assessment purposes includes public water supply systems which are newly constructed after the effective date of this rule, as well as systems which do not currently meet the

definition of a PWS, but which expand their infrastructure and thereby grow to become a PWS. Systems not currently meeting the definition of a PWS and which add additional users and thereby become a PWS without constructing any additional infrastructure are not "new systems" for the purposes of this subrule.

"Nonviable system" for viability assessment purposes means a system lacking the technical, financial, and managerial ability to comply with 567—Chapters 40 through 43 and 81.

"Significant noncompliance (SNC)" for viability assessment purposes means the failure to comply with any drinking water standard as adopted by the state of Iowa as designated by the department.

"Viability" for viability assessment purposes is the ability to remain in compliance insofar as the requirements of the federal Safe Drinking Water Act and 567—Chapters 40 through 43 and 81.

"Viable system" for viability assessment purposes means a system with the technical, financial, and managerial ability to comply with applicable drinking water standards adopted by the state of Iowa.

43.8(2) *Applicability and purpose.* These rules apply to all new and existing public water supplies, including the following: new systems commencing operation after October 1, 1999; systems deemed to be in significant noncompliance with the primary drinking water standards; DWSRF applicants; and existing systems. The purpose of the viability assessment program is to ensure the safety of the public drinking water supplies and ensure the viability of new public water supply systems upon commencement of operation. The department may assess public notification requirements and administrative penalties to any public water supply system which fails to fulfill the requirements of this rule.

43.8(3) *Contents of a viability assessment.* The viability assessment must address the areas of technical, financial, and managerial viability for a public water supply system. The assessment must include evaluation of the following areas at a minimum, and the public water supply system may be required to include additional information as directed by the department. The viability of a system should be forecast for a 20-year period.

a. Technical viability.

(1) Supply sources and facilities

(2) Treatment

(3) Infrastructure (examples: pumping, storage, distribution)

b. Financial viability.

(1) Capital and operating costs

(2) Revenue sources

(3) Contingency plans

c. Managerial viability.

(1) Operation

(2) Maintenance

(3) Management

(4) Administration

43.8(4) *New systems.*

a. Submission of system viability assessment. New public water supply systems (including community, nontransient noncommunity systems, and transient noncommunity systems) commencing operation after the effective date of this rule are required to submit a completed system viability assessment for review by the department, prior to obtaining a construction permit. The viability assessment may be submitted with the application for a construction permit. The department may reject receipt or delay review of the construction plans and specifications until an adequate viability assessment is provided. If the department finds, upon review and approval of the viability assessment, that the PWS will be viable, a construction permit will be issued in accordance with 567—Chapters 40 and 43. Prior to beginning operation, a public water supply operation permit must be obtained in accordance with 567—43.2(455B) and 567—40.5(455B).

b. Review of the viability assessment. If the department declines to approve the viability assessment as submitted by the applicant, or if the department finds that the PWS is not viable, approval of construction and operation permit applications will be denied. If the viability assessment is conditionally approved, construction and operation permits will be issued, with conditions and a schedule to achieve compliance specified in the operation permit.

43.8(5) *Existing systems.*

a. Submission of system viability assessment. Any community, nontransient noncommunity, or transient noncommunity water system which operated prior to October 1, 1999, and was regulated as a public water system by the department shall be considered an existing system. Any system which does not currently meet the definition of a PWS, but which expands their infrastructure and thereby grows to become a PWS is considered a new system. Systems not currently meeting the definition of a PWS and which add additional users and thereby become a PWS without constructing any additional infrastructure are considered existing systems for the purposes of this subrule. All PWSs should complete a viability assessment. However, only those existing PWSs which meet one or more of the following criteria are required to complete a viability assessment for the department's review and approval.

(1) Systems applying for DWSRF loan funds.

(2) Systems categorized as being in significant noncompliance by the department, due to their history of failure to comply with drinking water standards.

(3) Systems identified by the department via a sanitary survey as having technical, managerial, or financial problems as evidenced by such conditions as poor operational control, a poor state of repair or maintenance, vulnerability to contamination, or inability to maintain adequate distribution system operating pressures.

(4) Systems which have been unable to retain a certified operator in accordance with 567—Chapter 81.

b. Review of viability assessments for systems required to submit an assessment. If the assessment is incomplete and does not include all of the required elements, the supply will be notified in writing and will be given an opportunity to modify and resubmit the assessment within the time period specified by the department. If the system fails to resubmit a completed viability assessment as specified by the department, the department may find that the system is not viable. If the submitted assessment is complete, the department will either indicate that the system is viable or not viable after the assessment review process. The system will be notified of the results of the evaluation by the department.

c. Review of voluntarily submitted viability assessments. It is recommended that all existing systems complete the viability assessment and submit it to the department. Voluntarily submitted assessments may be reviewed upon request and will be exempt from any requirements to modify the assessment if it is not approved, or from a determination that the system is not viable, providing the system does not meet any of the criteria for mandatory completion of a viability assessment as set forth in 43.8(4)*"a"* above.

43.8(6) *Systems which are determined to be not viable.*

a. Applicability. The following applies to community, nontransient noncommunity, and transient noncommunity systems:

(1) Systems applying for DWSRF loan funds must be viable, or the loan funds must be used to assist the system in attaining viable status. If a system making a loan application is found to be not viable, and loan funds will not be sufficient or available to ensure viability, then the situation must be corrected to the department's satisfaction prior to qualification to apply for loan funds.

(2) Systems which meet the department's criteria of significant noncompliance are not considered viable. The viability assessment completed by the public water supply and the most recent sanitary survey results will be evaluated by the department to assist the system in returning to and remaining in compliance, which would achieve viability. Required corrective actions will be specified in the system's operation permit and will include a compliance schedule. Field office inspections will be conducted on an as-needed basis to assist the system in implementing the required system improvements.

(3) Systems experiencing technical, managerial, or financial problems as noted by department in the sanitary survey will be considered not viable. The viability assessment completed by the public water supply will be evaluated by the department to assist the system in attaining viability, and any required corrective actions will be specified in the system's operation permit.

(4) Systems unable to retain a certified operator will be considered not viable. All community and nontransient noncommunity water systems, and transient noncommunity water systems as denoted by the department, are required to have a certified operator who meets the requirements of 567—Chapter

81. The viability assessment completed by the public water supply will be used to determine the source of the problem, and required corrective actions will be specified in the system's operation permit.

b. Reserved.

43.8(7) *Revocation or denial of operation or construction permit.*

a. Revocation or denial of an operation permit. Failure to correct the deficiencies regarding viability, as identified in accordance with a compliance schedule set by the department, may result in revocation or denial of the system's operation permit. If the department revokes or denies the operation permit, the owner of the system must negotiate an alternative arrangement with the department for providing treatment or water supply services within 30 days of receipt of the notification by the department unless the owner of the supply appeals the decision to the department. The public water supply is required to provide water that continually meets all health-based standards during the appeal process.

b. Denial of new construction permits for an existing system. In addition to the criteria provided in 567—Chapters 40 through 44, new construction permits for water system improvements may be denied until the system makes the required corrections and attains viable status unless the proposed project is necessary to attain viability.

c. Failure to conform to approved construction plans and specifications, or to comply with the requirements of 567—Chapters 40 to 44. Failure of a project to conform to approved construction plans and specifications, or failure to comply with the requirements of 567—Chapters 40 to 44, constitutes grounds for the director to withhold the applicable construction and operation permits. The system is then responsible for ensuring that the identified problem with the project is rectified so that permits may be issued. Once an agreement for correcting the problem is reached between the department and the system, the department will issue the appropriate permits according to the provisions of the agreement. If an agreement cannot be reached within a reasonable time period, the permit shall be denied.

d. Contents of the notification denying the permit. The notification of denial or withholding approval of the operation or construction permit will state the department's reasons for withholding or denying permit approval.

43.8(8) *Appeals.*

a. Request for formal review of determination of viability. A person or entity who disagrees with the decision regarding the viability of a public water supply system may request a formal review of the action. A request for review must be submitted in writing to the director by the owner or their designee within 30 days of the date of notification by the department of the viability decision.

b. Appeal of denial of operation or construction permit. A decision to deny an operation or construction permit may be appealed by the applicant to the environmental protection commission pursuant to 567—Chapter 7. The appeal must be made in writing to the director within 30 days of receiving the notice of denial by the owner of the public water supply.

567—43.9(455B) Enhanced filtration and disinfection requirements for surface water and IGW systems serving at least 10,000 people.

43.9(1) *General requirements.*

a. Applicability. The requirements of this rule constitute national primary drinking water regulations. This rule establishes the filtration and disinfection requirements that are in addition to criteria under which filtration and disinfection are required in 567—43.5(455B). The requirements of this rule are applicable, beginning January 1, 2002, to all public water systems using surface water or groundwater under the direct influence of surface water, in whole or in part, and which serve at least 10,000 people. This rule establishes or extends treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. Each surface water or groundwater under the direct influence of surface water system serving at least 10,000 people must provide treatment of its source water that complies with these treatment technique requirements and they are in addition to those identified in subrule 43.5(1). The treatment technique requirements consist of installing and properly operating water treatment processes that reliably achieve:

(1) At least 99 percent (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems.

(2) Compliance with the profiling and benchmark requirements under 43.9(2).

(3) The department may require other surface water or groundwater under the direct influence of surface water systems to comply with this rule, through an operation permit.

b. Compliance determination. A public water system subject to the requirements of this rule is considered to be in compliance with the requirements of 43.9(1)*"a"* if it meets the applicable filtration requirements in either 43.5(3) or 43.9(3) and the disinfection requirements in 43.5(2) and 43.6(2).

c. Prohibition of new construction of uncovered intermediate or finished water storage facilities. Systems that are required to comply with this rule may construct only covered intermediate or finished water storage facilities. For the purposes of this rule, an intermediate storage facility is defined as a storage facility or reservoir after the clarification treatment process.

d. Systems with populations that increased after January 1, 2002, to more than 10,000 people served. Systems using surface water or influenced groundwater sources that did not conduct optional monitoring under 43.9(2) because they served fewer than 10,000 persons when such monitoring was required, but serve more than 10,000 persons prior to January 1, 2005, must comply with 43.9(1), 43.9(3), 43.9(4), and 43.9(5). These systems must also consult with the department to establish a disinfection benchmark. A system that decides to make a significant change to its disinfection practice as described in 43.9(2)*"c"*(1)"1" through "4" must consult with the department prior to making such a change.

43.9(2) *Disinfection profiling and benchmarking.*

a. Determination of systems required to profile. A public water system subject to the requirements of this rule must determine its total trihalomethane (TTHM) and haloacetic acid (HAA5) annual averages using the procedures listed below. The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring. Both the TTHM and HAA5 samples must be collected as paired samples during the same time period in order for each parameter to have the same annual average period for result comparison. A paired sample is one that is collected at the same location and time and is analyzed for both TTHM and HAA5 parameters.

(1) Allowance of information collection rule data. Those systems that collected data under the provisions of the federal Information Collection Rule listed in Code of Federal Regulations Title 40, Part 141, Subpart M, must use the results of the TTHM and HAA5 samples collected during the last four quarters of monitoring required under 40 CFR 141.142. The system must have submitted the results of the samples collected during the last 12 months of required monitoring.

(2) Systems that have not collected TTHM and HAA5 data under 43.9(2)*"a"*(1). Those systems that have not collected four consecutive quarters of paired TTHM and HAA5 samples as described under 43.9(2)*"a"*(1) must comply with all other provisions of this subrule as if the HAA5 monitoring had been conducted and the results of that monitoring required compliance with 43.9(2)*"b."* The system that elects this option must notify the department in writing of its decision.

(3) The department may require that a system use a more representative annual data set than the data set determined under 567—subparagraph 42.9(2)*"a"*(1) for the purpose of determining applicability of the requirements of this subrule.

(4) Profiling determination criteria. Any system having either a TTHM annual average greater than 0.064 mg/L or an HAA5 annual average greater than 0.048 mg/L during the period identified in 43.9(2)*"a"*(1) through (3) must comply with 43.9(2)*"b."*

b. Disinfection profiling.

(1) Applicability. Any system that meets the criteria in 43.9(2)*"a"*(4) must develop a disinfection profile of its disinfection practice for a period of up to three years.

(2) Monitoring requirements. The system must monitor daily for a period of 12 consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the $CT_{99.9}$ values in Tables 1 through 8 in Appendix A, as appropriate, through the entire treatment plant. This system must begin this monitoring as directed by the department. As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system must conduct

the monitoring in 43.9(2)*"b"*(2)"1" through "4." A system with more than one point of disinfectant application must conduct the monitoring in 43.9(2)*"b"*(2)"1" through "4" for each disinfection segment. The system must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in 43.5(4)*"a"* as follows:

1. The temperature of the disinfected water must be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.

2. If the system uses chlorine, the pH of the disinfected water must be measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.

3. The disinfectant contact time(s) ("T") must be determined for each day during peak hourly flow.

4. The residual disinfectant concentration(s) ("C") of the water before or at the first customer and prior to each additional point of disinfection must be measured each day during peak hourly flow.

(3) Use of existing data. A system that has existing operational data may use those data to develop a disinfection profile for additional years, in addition to the disinfection profile generated under 43.9(2)*"b"*(2). Such systems may use these additional yearly disinfection profiles to develop a benchmark under the provisions of 43.9(2)*"c."* The department must determine whether these operational data are substantially equivalent to data collected under the provisions of 43.9(2)*"b"*(2). These data must also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(4) Calculation of the total inactivation ratio. The system must calculate the total inactivation ratio as follows, using the $CT_{99.9}$ values from Tables 1 through 8 listed in Appendix A:

1. If the system uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the following two methods:

- Determine one inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.
- Determine successive $CTcalc/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the system must calculate the total inactivation ratio by determining ($CTcalc/CT_{99.9}$) for each sequence and then adding the ($CTcalc/CT_{99.9}$) values together to determine $\Sigma(CTcalc/CT_{99.9})$.

2. If the system uses more than one point of disinfectant application before the first customer, the system must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The $CTcalc/CT_{99.9}$ value of each segment and $\Sigma(CTcalc/CT_{99.9})$ must be calculated using the method in 43.9(2)*"b"*(4)"1."

3. The system must determine the total logs of inactivation by multiplying the value calculated in 43.9(2)*"b"*(4)"1" or "2" by 3.0.

(5) Systems using chloramines or ozone. A system that uses either chloramines or ozone for primary disinfection must also calculate the logs of inactivation for viruses using a method approved by the department.

(6) Profile retention requirements. The system must retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the department for review as part of sanitary surveys conducted by the department. The department may require the system to submit the data to the department directly or as part of a monthly operation report.

c. Disinfection benchmarking.

(1) Significant change to disinfection practice. Any system required to develop a disinfection profile under the provisions of 43.9(2)*"a"* or *"b"* that decides to make a significant change to its disinfection practice must obtain department approval prior to making such change. Significant changes to disinfection practice are:

1. Changes to the point of disinfection;
2. Changes to the disinfectant(s) used in the treatment plant;
3. Changes to the disinfection process; and
4. Any other modification identified by the department.

(2) Calculation of the disinfection benchmark. Any system that is modifying its disinfection practice must calculate its disinfection benchmark using the procedure specified below:

1. For each year of profiling data collected and calculated under 43.9(2)*"b,"* the system must determine the lowest average monthly *Giardia lamblia* inactivation in each year of profiling data. The system must determine the average *Giardia lamblia* inactivation for each calendar month for each year of profiling data by dividing the sum of daily *Giardia lamblia* inactivation by the number of values calculated for that month.

2. The disinfection benchmark is the lowest monthly average value (for systems with one year of profiling data) or average of lowest monthly average values (for systems with more than one year of profiling data) of the monthly logs of *Giardia lamblia* inactivation in each year of profiling data.

(3) A system that uses either chloramines or ozone for primary disinfection must also calculate the disinfection benchmark for viruses using a method approved by the department.

(4) The system must submit the following information to the department as part of its consultation process:

1. A description of the proposed change;

2. The disinfection profile for *Giardia lamblia* (and, if necessary, viruses) under 43.9(2)*"b"* and the disinfection benchmark as required by 43.9(2)*"c"*(2); and

3. An analysis of how the proposed change will affect the current levels of disinfection.

43.9(3) *Filtration.*

a. Conventional filtration treatment or direct filtration.

(1) Turbidity requirement in 95 percent of samples. For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) Maximum turbidity level. The turbidity level of representative samples of a system's filtered water must at no time exceed 1 NTU, measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(3) Systems with lime-softening treatment. A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the department.

b. Filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration. The department may allow a public water system to use a filtration technology not listed in 43.9(3)*"a"* or 43.5(3)*"c"* or *"d"* if it demonstrates to the department, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of 43.5(2), consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* cysts, 99.99 percent removal or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts and the department approves the use of the filtration technology. For each approval, the department will set turbidity performance requirements that the system must meet at least 95 percent of the time and the requirement that the system shall not exceed at any time at a level that consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* cysts, 99.99 percent removal or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts.

43.9(4) *Filtration sampling requirements.*

a. Monitoring requirements for systems using filtration treatment. In addition to monitoring required by 43.5(4), a public water system subject to the requirements of this rule that provides conventional filtration treatment or direct filtration must conduct continuous monitoring of turbidity for each individual filter using an approved method in 43.5(4)*"a"*(1) and must calibrate turbidimeters using the procedure specified by the manufacturer. Systems must record the results of individual filter monitoring every 15 minutes.

b. Failure of the continuous turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is repaired and back online. A system has a maximum of five working days after failure to repair the equipment, or else it is in violation.

43.9(5) *Reporting and record-keeping requirements.* In addition to the reporting and record-keeping requirements in 567—paragraph 42.4(3)*"c,"* a system subject to the requirements of this rule that

provides conventional filtration treatment or direct filtration must report monthly to the department the information specified in 43.9(5)*"a"* and *"b"* beginning January 1, 2002. In addition to the reporting and record-keeping requirements in 567—paragraph 42.4(3)*"c,"* a system subject to the requirements of this rule that provides filtration approved under 43.9(3)*"b"* must report monthly to the department the information specified in 43.9(5)*"a"* beginning January 1, 2002. The reporting in 43.9(5)*"a"* is in lieu of the reporting specified in 567—subparagraph 42.4(3)*"c"*(1).

a. Turbidity. Turbidity measurements as required by 43.9(3) must be reported in a format acceptable to the department and within ten days after the end of each month that the system serves water to the public. Information that must be reported includes:

(1) The total number of filtered water turbidity measurements taken during the month;

(2) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 43.9(3)*"a"* or *"b"*; and

(3) The date and value of any turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration or which exceed the maximum level set by the department under 43.9(3)*"b."*

b. Individual filter turbidity monitoring. Systems must maintain the results of individual filter turbidity per monitoring taken under 43.9(4) for at least three years. Systems must report to the department that they have conducted individual filter turbidity monitoring under 43.9(4) within ten days after the end of each month that the system serves water to the public. Systems must report to the department individual filter turbidity measurement results taken under 43.9(4) within ten days after the end of each month that the system serves water to the public only if measurements demonstrate one or more of the conditions specified in 43.9(5)*"b"*(1) through (4). Systems that use lime softening may apply to the department for alternative exceedance levels for the levels specified in 43.9(5)*"b"*(1) through (4) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(1) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(2) For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system must report the filter number, the turbidity, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(3) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each month of three consecutive months, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self-assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

(4) For any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each month of two consecutive months, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must arrange for a comprehensive performance evaluation to be conducted by the department or a third party approved by the department no later than

30 days following the exceedance and have the evaluation completed and submitted to the department no later than 90 days following the exceedance.

c. Additional reporting requirement for turbidity combined filter effluent.

(1) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

(2) If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the department under 43.9(3)*"b"* for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—43.10(455B) Enhanced filtration and disinfection requirements for surface water and IGW systems serving fewer than 10,000 people.

43.10(1) *General requirements.*

a. Applicability. The requirements of this rule constitute national primary drinking water regulations. This rule establishes requirements for filtration and disinfection that are in addition to criteria under which filtration and disinfection are required in 567—43.5(455B). The requirements of this rule are applicable beginning January 1, 2005, unless otherwise noted, to all public water systems using surface water or groundwater under the direct influence of surface water, in whole or in part, and which serve less than 10,000 people. This rule establishes or extends treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(1) At least 99 percent (2 log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems; and

(2) Compliance with the profiling and benchmark requirements in subrules 43.10(2) and 43.10(3).

b. Prohibition of new construction of uncovered intermediate or finished water storage facilities. Systems that are required to comply with this rule may construct only covered intermediate or finished water storage facilities. For the purposes of this rule, an intermediate storage facility is defined as a storage facility or reservoir after the clarification treatment process.

43.10(2) *Disinfection profile.*

a. Applicability. A disinfection profile is a graphical representation of a system's level of *Giardia lamblia* or virus inactivation measured during the course of a year. All systems required to comply with this rule must develop a disinfection profile unless the department determines that such a profile is unnecessary. Records must be maintained according to subrule 43.10(7).

(1) The department may approve the use of a more representative data set for disinfection profiling than the data set required in paragraph 43.10(2)*"b."*

(2) The department may determine that a system's profile is unnecessary only if a system's TTHM and HAA5 levels are below 0.064 mg/L and 0.048 mg/L, respectively. To determine these levels, TTHM and HAA5 samples must be collected after January 1, 1998, during the month with the warmest water temperature, and at the point of maximum residence time in the distribution system. The department may approve the use of a more representative annual data set for purpose of determining applicability of the requirements of this subrule. The annual data set must be calculated on an annual average, of the arithmetic average of the quarterly averages of four consecutive quarters of monitoring. At least 25 percent of the samples collected in each quarter must be collected at the maximum residence time location in the distribution system.

1. For systems that provide water to other public water supplies, if the producing system meets the byproduct level requirements of less than 0.064 mg/L for TTHM and less than 0.048 mg/L for HAA5, it will not be required to develop a disinfection profile and benchmark unless:

- The consecutive system cannot meet in its distribution system the byproduct level requirements of less than 0.064 mg/L for TTHM and less than 0.048 mg/L for HAA5, and
- The producing system wants to make a significant change to its disinfection practices.

2. The department will then assign the requirement to the producing system to conduct the disinfection profiling study and determine a disinfection benchmark.

b. Required elements of a disinfection profile.

(1) Collection of the following data for 12 consecutive months, beginning by July 1, 2003, for systems serving 500 to 9,999 people, and by January 1, 2004, for systems serving fewer than 500 people. A system must monitor the following parameters to determine the total log inactivation by using the analytical methods in paragraph 43.5(4)*"a,"* once per week on the same calendar day, over 12 consecutive months.

1. Temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow, measured in degrees Celsius;

2. For systems using chlorine, the pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow, measured in standard pH units;

3. The disinfectant contact time ("T") during peak hourly flow, measured in minutes; and

4. The residual disinfectant concentration(s) ("C") of the water following each point of disinfection at a point(s) prior to each subsequent point of disinfection and at the entry point to the distribution system or at a location just prior to the first customer during peak hourly flows, measured in mg/L.

(2) The data collected in 43.10(2)*"b"*(1) must be used to calculate the weekly log inactivation, along with the $CT_{99.9}$ tables listed in Appendix A. The system must calculate the total inactivation ratio as follows and multiply the value by 3.0 to determine log inactivation of *Giardia lamblia*:

1. If the system uses only one point of disinfectant application, it must determine:

- One inactivation ratio (CT calc/$CT_{99.9}$) before or at the first customer during peak hourly flow, or
- Successive (CT calc/$CT_{99.9}$) values, representing sequential inactivation ratios, between the point of disinfection application and a point before or at the first customer during peak hourly flow. Under this alternative, the system must calculate the total inactivation ratio by determining (CT calc/$CT_{99.9}$) for each sequence and then adding the (CT calc/$CT_{99.9}$) values together to determine (ΣCT calc/$CT_{99.9}$).

2. If a system uses more than one point of disinfectant application before the first customer, the system must determine the (CT calc/$CT_{99.9}$) value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow using the procedure specified in 43.10(2)*"b"*(2) "1," second bulleted paragraph.

3. If a system uses chloramines, ozone, or chlorine dioxide for primary disinfection, the system must also calculate the inactivation logs for viruses and develop an additional disinfection profile for viruses using methods approved by the department.

(3) The weekly log inactivations are used to develop a disinfection profile, as follows:

1. The disinfection profile is developed by graphing each log inactivation data point versus time. Each log inactivation serves as a data point in the disinfection profile. The system will have obtained 52 measurements at a minimum, one for each week of the year.

2. The disinfection profile depicts the variation of microbial inactivation over the course of the year.

3. The system must retain the disinfection profile data both in a graphic form and in a spreadsheet, which must be available for review by the department.

4. This profile is used to calculate a disinfection benchmark if the system is considering changes to its disinfection practices.

43.10(3) *Disinfection benchmark.*

a. Applicability. Any system required to develop a disinfection profile under 43.10(2) must develop a disinfection benchmark prior to making any significant change in disinfection practice. The system must receive department approval before any significant change in disinfection practice is implemented. Records must be maintained according to subrule 43.10(7).

b. Significant changes to disinfection practice. Significant changes to disinfection practice include:

(1) Changes to the point of disinfection;

(2) Changes to the disinfectant(s) used in the treatment plant;

(3) Changes to the disinfection process; or

(4) Any other modification identified by the department.

c. Calculation of the disinfection benchmark. The system must calculate the disinfection benchmark in the following manner:

(1) Step 1. Using the data collected to develop the disinfection profile, the system must determine the average *Giardia lamblia* inactivation for each calendar month by dividing the sum of all *Giardia lamblia* inactivations for that month by the number of values calculated for that month.

(2) Step 2. The system must determine the lowest monthly average value out of the 12 values. This value becomes the disinfection benchmark.

d. Information required for department approval of a change in disinfection practice. Any significant change in disinfection practice must have been approved by the department before the system institutes the change. The following information must be submitted by the system to the department as part of the consultation and approval process.

(1) A description of the proposed change;

(2) The disinfection profile for *Giardia lamblia* and, if necessary, viruses;

(3) The disinfection benchmark;

(4) An analysis of how the proposed change will affect the current levels of disinfection; and

(5) Any additional information requested by the department.

e. Additional benchmark requirements if chloramines, ozone, or chlorine dioxide is used for primary disinfection. If a system uses chloramines, ozone, or chlorine dioxide for primary disinfection, the system must calculate the disinfection benchmark from the data collected for viruses to develop the disinfection profile in addition to the *Giardia lamblia* disinfection benchmark calculated in paragraph 43.10(3)*"c."* This viral benchmark must be calculated in the same manner used to calculate the *Giardia lamblia* disinfection benchmark in paragraph 43.10(3)*"c."*

43.10(4) *Combined filter effluent turbidity requirements.* All systems using surface water or groundwater under the direct influence of surface water which serve less than 10,000 people must use filtration, and the turbidity limits that must be met depend upon the type of filtration used. Systems using lime softening may acidify representative combined filter effluent turbidity samples prior to analysis, using a protocol approved by the department.

a. Conventional filtration treatment or direct filtration.

(1) Turbidity must be measured in the combined filter effluent as described in paragraphs 43.5(4)*"a"* and *"b."*

(2) The turbidity in the combined filter effluent must be less than or equal to 0.3 NTU in 95 percent of the turbidity measurements taken each month.

(3) The turbidity in the combined filter effluent must never exceed 1 NTU at any time during the month.

(4) The monthly reporting requirements are listed in subrule 43.10(6).

b. Slow sand filtration or diatomaceous earth filtration.

(1) Turbidity must be measured in the combined filter effluent as described in paragraphs 43.5(4)*"a"* and *"b."*

(2) The combined filter effluent turbidity limits of subrule 43.5(3) must be met.

(3) The monthly reporting requirements are listed in subrule 43.10(6).

c. Other alternative filtration technologies. By using pilot studies or other means, a system using alternative filtration must demonstrate to the satisfaction of the department that the system's filtration, in combination with disinfection treatment, consistently achieves 99 percent removal of *Cryptosporidium* oocysts; 99.9 percent removal, inactivation, or a combination of both, of *Giardia lamblia* cysts; and 99.99 percent removal, inactivation, or a combination of both, of viruses. The department will then use the pilot study data to determine system-specific turbidity limits.

(1) Turbidity must be measured in the combined filter effluent as described in paragraphs 43.5(4)*"a"* and *"b."*

(2) The turbidity must be less than or equal to a value set by the department in 95 percent of the combined filter effluent turbidity measurements taken each month, based on the pilot study. The value may not exceed 1 NTU.

(3) The combined filter effluent turbidity must never exceed a value set by the department, based on the pilot study. The value may not exceed 5 NTU.

(4) The monthly reporting requirements are listed in subrule 43.10(6).

43.10(5) *Individual filter turbidity requirements.* All systems utilizing conventional filtration or direct filtration must conduct continuous monitoring of turbidity for each individual filter. Records must be maintained according to subrule 43.10(7).

a. Continuous turbidity monitoring requirements. Following are the continuous turbidity monitoring requirements.

(1) Monitoring must be conducted using an approved method listed in paragraph 43.5(4)*"a"*;

(2) Calibration of turbidimeters must be conducted using procedures specified by the manufacturer;

(3) Results of turbidity monitoring must be recorded at least every 15 minutes;

(4) Monthly reporting must be completed according to subrule 43.10(6); and

(5) Records must be maintained according to 43.10(7).

b. Failure of continuous turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is back on-line. A system has a maximum of 14 days after failure to repair the equipment, or else the system is in violation. The system must notify the department within 24 hours of both when the turbidimeter was taken off-line and when it was returned on-line.

c. Special provision for one-filter or two-filter systems. If a system has only one or two filters, it may conduct continuous monitoring of the combined filter effluent turbidity instead of individual effluent turbidity monitoring. The continuous monitoring of the combined filter effluent turbidity must meet the requirements listed in 43.10(5)*"a"* and *"b."*

d. Alternative turbidity levels for systems using lime softening. Systems using lime softening may apply to the department for alternative turbidity exceedance levels for the levels specified in 43.10(5)*"e."* The system must be able to demonstrate to the satisfaction of the department that higher turbidity levels are due to lime carryover only, and not due to degraded filter performance.

e. Requirements triggered by the individual filter turbidity monitoring data. Systems are required to conduct additional activities based upon their individual filter turbidity monitoring data, as listed in this paragraph.

(1) If the turbidity of an individual filter (or the turbidity of the combined filter effluent for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 1.0 NTU in two consecutive recordings taken 15 minutes apart, the system must report the following information in the monthly operation report to the department by the tenth day of the following month:

1. The filter number(s);
2. Corresponding date(s);
3. Turbidity value(s) which exceeded 1.0 NTU; and
4. The cause of the exceedance(s), if known.

(2) If the turbidity of an individual filter (or the turbidity of the combined filter effluent for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 1.0 NTU in two consecutive recordings 15 minutes apart in three consecutive months, the system must meet the following requirements:

1. The system must conduct a self-assessment of the filter(s) within 14 days of the day the filter exceeded 1.0 NTU in two consecutive measurements for the third straight month, unless a comprehensive performance evaluation as specified in the following paragraph is required. Two-filter systems that monitor the combined filter effluent turbidity instead of the individual filters must conduct a self-assessment of both filters.

2. The self-assessment must consist of at least the following components:

- Assessment of filter performance;
- Development of a filter profile;
- Identification and prioritization of factors limiting filter performance;
- Assessment of the applicability of corrections;
- Preparation of a filter self-assessment report;
- Date the self-assessment requirement was triggered; and
- Date the self-assessment was completed.

(3) If the turbidity of an individual filter (or the turbidity of the combined filter effluent for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 2.0 NTU in two consecutive recordings 15 minutes apart in two consecutive months, the system must meet the following requirements:

1. The system must arrange to have a comprehensive performance evaluation (CPE) conducted by the department or a third party approved by the department no later than 60 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month. The CPE report must be completed and submitted to the department within 120 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month.

2. A new CPE is not required if a CPE has been completed by the department or a third party approved by the department within the prior 12 months or if the system and department are jointly participating in an ongoing comprehensive technical assistance project at the system.

(4) The department may conduct a CPE at a system regardless of individual filter turbidity levels.

43.10(6) *Reporting requirements.* The system must meet the following reporting requirements:

a. Combined filter effluent turbidity monitoring.

(1) The following information must be reported in the monthly operation report to the department by the tenth day of the following month.

1. Total number of filtered water turbidity measurements taken during the month.

2. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the system's required 95th percentile limit.

3. The date and analytical result of any turbidity measurements taken during the month which exceeded the maximum turbidity limit for the system, in addition to the requirements of 43.10(6)*"a"*(2).

(2) For an exceedance of the combined filter effluent maximum turbidity limit, the following requirements must be met.

1. If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

2. If at any time the turbidity in representative samples of filtered water exceeds the maximum level under subrule 43.5(3) for slow sand filtration or diatomaceous earth filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

3. If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the department under paragraph 43.10(4)*"c"* for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

b. Individual filter effluent turbidity monitoring. The following information must be reported in the monthly operation report to the department by the tenth day of the following month, unless otherwise noted.

(1) That the system conducted individual filter turbidity monitoring during the month.

(2) For any filter that had two consecutive measurements taken 15 minutes apart that exceeded 1.0 NTU, the following information must be reported:

1. The filter number(s);
2. The corresponding dates; and
3. The turbidity values that exceeded 1.0 NTU.

(3) If a self-assessment was required, the date it was triggered and the date the assessment was completed must be reported. If the self-assessment requirement was triggered in the last four days of the month, the information must be reported to the department by the 14th day of the following month.

(4) If a comprehensive performance evaluation was required, the date it was triggered must be reported. A copy of the CPE report must be submitted to the department within 120 days of when the CPE requirement was triggered.

c. Disinfection profiling. The following information must be reported to the department by January 1, 2004, for systems serving fewer than 500 people.

(1) Results of disinfection byproduct monitoring that indicate TTHM levels less than 0.064 mg/L and HAA5 levels less than 0.048 mg/L; or

(2) That the system has begun to collect the profiling data.

d. Disinfection benchmarking. Before a system that was required to develop a disinfection profile makes a significant change to its disinfection practice, it must report the following information to the department, and the system must receive department approval before any significant change in disinfection practice is implemented.

(1) Description of the proposed change in disinfection practice;

(2) The system's disinfection profile for *Giardia lamblia* and, if applicable, for viruses;

(3) The system's disinfection benchmark; and

(4) An analysis of how the proposed change will affect the current levels of disinfection.

43.10(7) *Record-keeping requirements.* The system must meet the following record-keeping requirements, in addition to the record-keeping requirements in 567—paragraph 42.4(3)*"c"* and 567—42.5(455B).

a. Individual filter effluent turbidity requirements. The results of the individual filter effluent turbidity monitoring must be kept for at least three years.

b. Disinfection profiling requirements. The results of the disinfection profile, including raw data and analysis, must be kept indefinitely.

c. Disinfection benchmarking requirements. The results of the disinfection benchmark, including raw data and analysis, must be kept indefinitely.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—43.11(455B) Enhanced treatment for *Cryptosporidium*.

43.11(1) *Applicability.* The requirements of this rule are national primary drinking water regulations and establish or extend treatment technique requirements in lieu of maximum contaminant levels for *Cryptosporidium*. These requirements are in addition to the filtration and disinfection requirements of 567—43.5(455B), 567—43.9(455B) and 567—43.10(455B) and apply to all Iowa public water systems supplied by surface water or influenced groundwater sources.

a. Wholesale systems. Wholesale systems must comply with the requirements based on the population of the largest system in the combined distribution system.

b. Filtered systems. The requirements of this rule for filtered systems apply to systems that are required to provide filtration treatment pursuant to 567—43.5(455B), whether or not the system is currently operating a filtration system.

43.11(2) *General requirements.* Systems subject to this rule must comply with the following requirements:

a. Source water monitoring. Systems must conduct two rounds of source water monitoring for each plant that treats a surface water or influenced groundwater source. This monitoring may include sampling for *Cryptosporidium*, *E. coli*, and turbidity, as described in 43.11(3), to determine what level, if any, of additional *Cryptosporidium* treatment the systems must provide.

b. Disinfection profiles and benchmarks. Systems that plan to make a significant change to their disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in 43.11(4).

c. Cryptosporidium treatment bin determination. Systems must determine their *Cryptosporidium* treatment bin classification and provide additional treatment for *Cryptosporidium*, if required, according to the prescribed schedule.

d. Additional treatment for Cryptosporidium. Systems required to provide additional treatment for *Cryptosporidium* must implement microbial toolbox options that are designed and operated as described in 43.11(8) through 43.11(13).

e. Record keeping and reporting. Systems must comply with the applicable record-keeping and reporting requirements described in 43.11(14) and 43.11(15).

f. Significant deficiencies. Systems must address significant deficiencies identified during sanitary surveys as described in 43.1(7).

43.11(3) *Source water monitoring.*

a. Schedule. Systems must conduct the source water monitoring no later than the month and year listed in Table 1. A system may avoid the source water monitoring if the system provides a total of at least 5.5-log treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in 43.11(6). The system must install and operate technologies to provide this level of treatment by the applicable treatment compliance date specified in 43.11(7).

Table 1: Source Water Monitoring Schedule

System	First round of monitoring	Second round of monitoring
Serves at least 100,000 people	October 2006	April 2015
Serves 50,000-99,999 people	April 2007	October 2015
Serves 10,000-49,999 people	April 2008	October 2016
Serves fewer than 10,000 people and only conducts *E. coli* monitoring	October 2008	October 2017
Serves fewer than 10,000 people and conducts *Cryptosporidium* monitoring	April 2010	April 2019

b. Monitoring requirements. The minimum monitoring requirements are listed below. Systems may sample more frequently, provided the sampling frequency is evenly spaced throughout the monitoring period.

(1) Systems serving at least 10,000 people. Systems serving at least 10,000 people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 months.

(2) Systems serving fewer than 10,000 people. Systems serving fewer than 10,000 people are allowed to first conduct *E. coli* monitoring to determine if further monitoring for *Cryptosporidium* is required.

1. Systems must sample their source water for *E. coli* at least once every two weeks for 12 months. If the annual mean *E. coli* concentration is at or below 100 *E. coli* per 100 mL, the system can avoid further *Cryptosporidium* monitoring in that sampling round.

2. A system may avoid *E. coli* monitoring if the system notifies the department no later than three months prior to the *E. coli* monitoring start date that the system will conduct *Cryptosporidium* monitoring.

3. Systems that fail to conduct the required *E. coli* monitoring or that cannot meet the *E. coli* annual mean limit are required to conduct *Cryptosporidium* monitoring. The system must sample its

source water for *Cryptosporidium* either at least twice per month for 12 months or at least monthly for 24 months.

4. A system that begins monitoring for *E. coli* and determines during the sampling period that the system mathematically cannot meet the applicable *E. coli* annual mean limit may discontinue the *E. coli* sampling. The system is then required to start *Cryptosporidium* monitoring according to the schedule in Table 1.

(3) Plants operating only part of the year. Systems with surface water or influenced groundwater treatment plants that operate for only part of the year must conduct source water monitoring in accordance with this rule, but with the following modifications.

1. Systems must sample their source water only during the months that the plant operates unless the department specifies another monitoring period based on plant operating practices.

2. Systems with plants that operate less than six months per year and that monitor for *Cryptosporidium* must collect at least six samples per year for two years.

(4) New sources. A system that begins using a new surface water or influenced groundwater source after the dates in Table 1 must monitor according to a schedule approved by the department and meet the requirements of this subrule. The system must also meet the requirements of the bin classification and *Cryptosporidium* treatment for the new source on a schedule approved by the department. The system must conduct the second round of source water monitoring no later than six years following the initial bin classification or determination of the mean *Cryptosporidium* level, as applicable.

(5) Monitoring violation determination. Failure to collect any source water sample required under this subrule in accordance with the sampling plan, location, analytical method, approved laboratory, or reporting requirements of 43.11(3)*"c"* through 43.11(3)*"e"* is a monitoring violation.

(6) Grandfathered monitoring data. Systems were allowed to use source water monitoring *Cryptosporidium* data collected prior to the applicable start date in Table 1 to meet the requirements of the first round of monitoring, a process referred to as grandfathering data. This grandfathered data substituted for an equivalent number of months at the end of the monitoring period and had to meet the requirements of 40 CFR 141.707 as adopted on January 5, 2006, which the department hereby adopts by reference. Department approval of the grandfathered data application is required.

c. Sampling plan. Systems must submit a sampling plan that specifies the sampling locations in relation to the sources and treatment processes and the calendar dates when the system will collect each required sample. The specific treatment process locations that must be included in the plan are pretreatment, points of chemical treatment, and filter backwash recycle.

(1) The sampling plan must be submitted no later than three months prior to the applicable monitoring date in Table 1. If the department does not respond to a system regarding the submitted sampling plan prior to the start of the monitoring period, the system must sample according to the submitted sampling plan.

(2) The plan must be submitted in a form acceptable to the department.

(3) The system must monitor within two days of the date specified in the plan, unless one of the following conditions occurs.

1. If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided, and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled date as is feasible unless the department approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the department within one week of the missed sampling period. A replacement sample must be collected.

2. If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method or quality control requirements, or failure of the laboratory to analyze the sample, the system must notify the department of the cause of the delay and collect a replacement sample.

3. A replacement sample must be collected within 21 days of the scheduled sampling period or on the resampling date approved by the department.

(4) Missed sampling dates. Systems that fail to meet the dates in their sampling plan for any source water sample must revise their sampling plan to add dates for collecting all missed samples. The revised schedule must be submitted to the department for approval prior to the collection of the missed samples.

d. Sampling locations. Systems must collect samples for each treatment plant that treats a surface water or influenced groundwater source.

(1) Chemical treatment location. Systems must collect source water samples prior to chemical treatment. If the system cannot feasibly collect a sample prior to chemical treatment, the department may grant approval for the system to collect the sample after chemical treatment. This approval would only be granted if the department determines in writing that collecting the samples prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(2) Filter backwash recycle return location. Systems that recycle filter backwash water must collect the source water samples prior to the point of filter backwash water addition.

(3) Bank filtration credit sampling location.

1. Systems that receive *Cryptosporidium* treatment credit for bank filtration under 43.9(3)*"b"* or 43.10(4)*"c"* must collect source water samples in the surface water source prior to bank filtration.

2. Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well, which is after bank filtration has occurred. Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under 43.11(10)*"c."*

(4) Multiple sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and groundwater sources, must collect samples as follows:

1. The use of multiple sources during monitoring must be consistent with routine operational practice.

2. If a sampling tap is available where the sources are combined prior to treatment, the system must collect samples from that tap.

3. If a sampling tap where the sources are combined prior to treatment is not available, the system must collect samples at each source near the intake on the same day and must use either of the following options for sample analysis.

- Physically composite the source samples into a single sample for analysis. Systems may composite the sample from each source into one sample prior to analysis. The volume of the sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.
- Analyze the samples separately and mathematically composite the results. Systems may analyze samples from each source separately and calculate a weighted average of the analytical results for each sampling date. The weighted average must be calculated by multiplying the analytical result for each source by the fraction that source contributed to the total plant flow at the time the sample was collected and then summing the weighted analytical results.

e. Analytical methodology, laboratory certification, and data reporting requirements. Systems must have samples analyzed pursuant to the specifications listed in this paragraph. The system must report, in a format acceptable to the department, the analytical results from the source water monitoring no later than ten days after the end of the first month following the month when the sample is collected.

(1) *Cryptosporidium.* Systems must have *Cryptosporidium* samples analyzed by a laboratory that is approved under EPA's Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water.

1. There are two approved analytical methods for *Cryptosporidium*: "Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA," 2005, US EPA, EPA-815-R-05-002; and, "Method 1622: *Cryptosporidium* in Water by Filtration/IMS/FA," 2005, US EPA, EPA-815-R-05-001.

2. Using one of the two approved methods, the laboratory must analyze at least a 10 L sample or a packed pellet volume of at least 2 mL.

3. A matrix spike (MS) sample must be spiked and filtered by the laboratory according to the approved method. If the volume of the MS sample is greater than 10 L, the system may filter all but 10 L of the MS sample in the field and ship the filtered sample and the remaining 10 L of source water to the laboratory. In this case, the laboratory must spike the remaining 10 L of water and filter it through the filter used to collect the balance of the sample in the field.

4. Flow cytometer-counted spiking suspensions must be used for the matrix spike samples and the ongoing precision and recovery samples.

5. The following data elements must be reported for each *Cryptosporidium* analysis:

- PWSID.
- Facility ID.
- Sample collection date.
- Sample type (i.e., field or matrix spike).
- Sample volume filtered (L), to the nearest 0.25 L.
- Whether 100 percent of the filtered volume was examined by the laboratory.
- Number of oocysts counted.
- For matrix spike samples: sample volume spiked and estimated number of oocysts spiked.
- For samples in which less than 10 L is filtered or less than 100 percent of the sample volume is examined: the number of filters used and the packed pellet volume.
- For samples in which less than 100 percent of sample volume is examined: the volume of resuspended concentrate and the volume of this resuspension processed through immunomagnetic separation.

(2) *E. coli.* Systems must have the *E. coli* samples analyzed by a laboratory certified by EPA, the National Environmental Laboratory Accreditation Conference, or the department for total coliform or fecal coliform analysis in drinking water samples using the same approved *E. coli* method for the analysis of source water.

1. The approved analytical methods for the enumeration of *E. coli* in source water are shown in Table 2.

Table 2: *E. coli* Analytical Methods

Method	EPA	Standard Methods: 18th, 19th, and 20th editions	Other
Most probable number with multiple tube or multiple well[1,2]		9223 B[3]	991.15[4] Colilert[3,5] Colilert-18[3,5,6]
Membrane filtration single step[1,7,8]	1603[9]		m-ColiBlue24[10]

[1]Tests must be conducted to provide organism enumeration (i.e., density). Select the appropriate configuration of tubes/filtrations and dilutions/volumes to account for the quality, consistency, and anticipated organism density in the water sample.

[2]Samples shall be enumerated by the multiple-tube or multiple-well procedure. Using multiple-tube procedures, employ an appropriate tube and dilution configuration of the sample as needed and report the Most Probable Number (MPN). Samples tested with Colilert® may be enumerated with the multiple-well procedures, Quanti-Tray®, Quanti-Tray® 2000, and the MPN calculated from the table provided by the manufacturer.

[3]These tests are collectively known as defined enzyme substrate tests, where, for example, a substrate is used to detect the enzyme beta-glucouronidase produced by *E. coli*.

[4]Association of Official Analytical Chemists, International. "Official Methods of Analysis of AOAC International, 16th Ed., Volume 1, Chapter 17, 1995. AOAC, 481 N. Frederick Ave., Suite 500, Gaithersburg, MD 20877-2417.

[5]Descriptions of the Colilert®, Colilert-18®, Quanti-Tray®, and Quanti-Tray® 2000 may be obtained from IDEXX Laboratories, Inc., 1 IDEXX Drive, Westbrook, ME 04092.

[6]Colilert-18® is an optimized formulation of the Colilert® for the determination of total coliforms and *E. coli* that provides results within 18 hours of incubation at 35 degrees C rather than the 24 hours required for the Colilert® test.

[7]The filter must be a 0.45 micron membrane filter or a membrane filter with another pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with organism growth.

[8]When the membrane filter method has been used previously to test waters with high turbidity or large numbers of noncoliform bacteria, a parallel test should be conducted with a multiple-tube technique to demonstrate applicability and comparability of results.

[9]"Method 1603: *Escherichia coli (E. coli)* in Water by Membrane Filtration Using Modified Membrane-Thermotolerant *Escherichia coli* Agar (modified mTEC), USEPA, July 2006." US EPA, Office of Water, Washington, DC EPA 821-R-06-011.

[10]A description of the m-ColiBlue24® test, Total Coliforms and *E. coli*, is available from Hach Company, 100 Dayton Ave., Ames, IA 50010.

2. The holding time (the time period from sample collection to initiation of analysis) shall not exceed 30 hours. The department may approve on a case-by-case basis an extension of the holding time to 48 hours, if the 30-hour holding time is not feasible. If the extension is allowed, the laboratory must use the Colilert® reagent version of the Standard Methods 9223B to conduct the analysis.

3. The samples must be maintained between 0 and 10 degrees C during storage and transit to the laboratory.

4. The following data elements must be reported for each *E. coli* analysis:

- PWSID.
- Facility ID.
- Sample collection date.
- Analytical method number.
- Method type.
- Source type (flowing stream or river; lake or reservoir; or influenced groundwater).
- Number of *E. coli* per 100 mL.
- Turbidity in NTU.

(3) Turbidity. The approved analytical methods for turbidity are listed in 43.5(4)*"a"*(1). Measurements of turbidity must be made by a party approved by the department, and reported on the laboratory data sheet with the corresponding *E. coli* sample.

43.11(4) *Disinfection profiling and benchmarking.*

a. General requirements. Following completion of the first round of source water monitoring, a system that plans to make a significant change to its disinfection practice must develop disinfection profiles and calculate disinfection benchmarks for *Giardia lamblia* and viruses.

(1) Notification to the department. The system must notify the department prior to changing its disinfection practice and must include in the notice the completed disinfection profile and disinfection benchmark for *Giardia lamblia* and viruses, a description of the proposed change in disinfection practice, and an analysis of how the proposed change will affect the current level of disinfection.

(2) Definition of "significant change." A significant change to the disinfection practice is defined as follows:

1. Any change to the point of disinfection;
2. Any change to the disinfectant(s) used in the treatment plant;
3. Any change to the disinfection process; or
4. Any other modification identified by the department as a significant change to disinfection practice.

b. Developing the disinfection profile. In order to develop a disinfection profile, a system must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for *Giardia lamblia* and viruses. If a system monitors more frequently, the monitoring frequency must be evenly spaced. A system that operates for fewer than 12 months per year must monitor weekly during the period of operation. A system must determine log inactivation for *Giardia lamblia* through the entire plant, based on $CT_{99.9}$ values in Appendix A, Tables 1 through 6, as applicable. Systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the department.

(1) Monitoring requirements. Systems with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring listed in this subparagraph. Systems with multiple points of disinfectant application must conduct the same monitoring for each disinfection segment. Systems must monitor the parameters necessary to determine the total inactivation ratio. The

analytical methods for the parameters are listed in 43.5(4)*"a."* All measurements must be taken during peak hourly flow.

1. For systems using a disinfectant other than UV, the temperature of the disinfected water must be measured in degrees Celsius at each residual disinfectant concentration sampling point or at an alternative location approved by the department.

2. For systems using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point or at an alternative location approved by the department.

3. The disinfectant contact time must be determined in minutes.

4. The residual disinfectant concentrations of the water must be determined in mg/L before or at the first customer and prior to each additional point of disinfectant application.

5. A system may use existing data to meet the monitoring requirements if the data are substantially equivalent to the required data, the system has not made any significant change to its treatment practice, and the system has the same source water as it had when the data were collected. Systems may develop disinfection profiles using up to three years of existing data.

6. A system may use disinfection profiles developed under 43.9(2) or 43.10(2) if the system has not made a significant change to its treatment practice and has the same source water as it had when the profile was developed. The virus profile must be developed using the same data on which the *Giardia lamblia* profile is based.

(2) Calculation of the total inactivation ratio for *Giardia lamblia*.

1. Systems using only one point of disinfectant application may determine the total inactivation ratio ($CT_{calc}/CT_{99.9}$) for the disinfection segment using either of the following methods.

- Determine one inactivation ratio before or at the first customer during peak hourly flow.
- Determine successive sequential inactivation ratios between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Calculate the total inactivation ratio by determining the inactivation ratio for each sequence ($CT_{calc}/CT_{99.9}$) and adding the values together.

2. Systems using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. Calculate the ($CT_{calc}/CT_{99.9}$) value of each segment and add the values together to determine the total inactivation ratio.

3. Systems must then determine the total logs of inactivation by multiplying the total inactivation ratio by 3.0.

(3) Calculation of the total inactivation ratio for viruses. The system must calculate the log of inactivation for viruses using a protocol approved by the department.

c. Calculation of the disinfection benchmark.

(1) For each year of profiling data collected and calculated under this subrule, systems must determine the lowest mean monthly level of both *Giardia lamblia* and virus inactivation. Systems must determine the mean *Giardia lamblia* and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly *Giardia lamblia* and virus log inactivation by the number of values calculated for that month.

(2) For a system with one year of profiling data, the disinfection benchmark is the lowest monthly mean value. For a system with more than one year of profiling data, the disinfection benchmark is the mean of the lowest monthly mean values of *Giardia lamblia* and virus log inactivation in each year of profiling data.

43.11(5) *Bin classification.* Upon completion of the first round of source water monitoring, systems must calculate an initial *Cryptosporidium* bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the *Cryptosporidium* results reported under 43.11(3)*"a."*

a. Calculation of mean Cryptosporidium or bin concentration value.

(1) Systems that collect at least 48 samples. For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(2) Systems that collect 24 to 47 samples. For systems that collect at least 24 samples but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected.

(3) Systems serving fewer than 10,000 people and monitoring for only one year. For systems that serve fewer than 10,000 people and monitor *Cryptosporidium* for only one year (i.e., 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

(4) Systems with plants operating on a part-time basis. For systems with plants operating only part of the year that monitor fewer than 12 months per year, the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

(5) If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification.

b. Determination of bin classification.

(1) First monitoring round. A system must determine the bin classification from Table 3, using its calculated bin concentration from 43.11(5)*"a"*

Table 3: Bin Classification Table

System Type	*Cryptosporidium* Concentration, in oocysts/L	Bin Classification
Systems required to monitor for *Cryptosporidium* under 43.11(3)*"b"*(1) or 43.11(3)*"b"*(2)"3"	Fewer than 0.075 oocysts/L	Bin 1
	Between 0.075 and fewer than 1.0 oocysts/L	Bin 2
	Between 1.0 and fewer than 3.0 oocysts/L	Bin 3
	3.0 oocysts/L or greater	Bin 4
Systems serving fewer than 10,000 and not required to monitor for *Cryptosporidium*, pursuant to 43.11(3)*"b"*(2)"1"	Not applicable	Bin 1

(2) Second monitoring round. Following completion of the second round of source water monitoring, a system must recalculate its bin concentration and determine its new bin classification, using the same protocols outlined in 43.11(5)*"a"* and *"b."*

c. Reporting bin classification to the department. Within six months of the end of the sampling period, the system must report its bin classification to the department for approval. The report must also include a summary of the source water monitoring data and the calculation procedure used to determine the bin classification.

d. Treatment technique violation. Failure to comply with 43.11(5)*"b"* and *"c"* is a violation of the treatment technique requirement.

43.11(6) *Additional Cryptosporidium treatment requirements.* A system must provide the level of additional treatment for *Cryptosporidium* specified in Table 4 based on its bin classification determined in 43.11(5) and according to the schedule in 43.11(7).

a. Determination of additional Cryptosporidium treatment requirements. Using Table 4, a system must determine any additional treatment requirements based upon its bin classification. The Bin 1 classification does not require any additional treatment. Bins 2 through 4 require additional *Cryptosporidium* treatment.

Table 4: Additional *Cryptosporidium* Treatment Requirements

Bin Classification	Treatment Used by the System for Compliance with 43.5, 43.9, and 43.10			
	Conventional filtration (including softening)	Direct filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment
Bin 2	1-log treatment	1.5-log treatment	1-log treatment	At least 4.0-log[1]
Bin 3	2-log treatment	2.5-log treatment	2-log treatment	At least 5.0-log[1]
Bin 4	2.5-log treatment	3-log treatment	2.5-log treatment	At least 5.5-log[1]

[1]The total *Cryptosporidium* removal and inactivation must be at least this value, as determined by the department.

b. Treatment requirements for Bins 2 through 4. A system that is classified as Bin 2, 3, or 4 must use one or more of the treatment and management options listed in 43.11(8) to comply with the required additional *Cryptosporidium* treatment. Systems classified as Bins 3 and 4 must achieve at least 1-log of the additional *Cryptosporidium* treatment required by using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as listed in 43.11(9) through 43.11(13).

c. Treatment technique violation. Failure by a system in any month to achieve treatment credit by meeting criteria in 43.11(9) through 43.11(13) that is at least equal to the level of treatment required in 43.11(6)*"a"* is a violation of the treatment technique requirement.

d. Significant changes to the watershed. If, after the system's completion of source water monitoring (either round), the department determines during a sanitary survey or an equivalent source water assessment that significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system must take actions specified by the department to address the contamination. These actions may include additional source water monitoring and implementing microbial toolbox options listed in 43.11(8).

43.11(7) *Schedule for compliance with Cryptosporidium treatment requirements.* Following the initial bin classification under 43.11(5), systems must provide the level of treatment for *Cryptosporidium* required in 43.11(6), according to the schedule in Table 5. If the bin classification of a system changes following the second round of source water monitoring, the system must provide the level of treatment for *Cryptosporidium* required in 43.11(6), on a schedule approved by the department.

Table 5: *Cryptosporidium* Treatment Compliance Dates

Schedule	Population Served by System	Compliance Date for *Cryptosporidium* treatment requirements[1]
1	At least 100,000 people	April 1, 2012
2	From 50,000 to 99,999 people	October 1, 2012
3	From 10,000 to 49,999 people	October 1, 2013
4	Fewer than 10,000 people	October 1, 2014

[1]The department may allow up to an additional two years for compliance with the treatment requirement if the system must make capital improvements.

43.11(8) *Microbial toolbox options for meeting Cryptosporidium treatment requirements.* Systems receive the treatment credits listed in Table 6 by meeting the conditions for microbial toolbox options described in 43.11(9) through 43.11(13). Systems apply these treatment credits to meet the treatment requirements in 43.11(6). Table 6 summarizes options in the microbial toolbox.

Table 6: Microbial Toolbox Summary Table: Options, Treatment Credits, and Criteria

Toolbox Option	Specific Criteria Rule	*Cryptosporidium* treatment credit with design and implementation criteria
Source Protection and Management Toolbox Options		
Watershed control program	43.11(9)	0.5-log credit for department-approved program comprising required elements, annual program status report to department, and regular watershed survey.
Alternative source/intake management	43.11(9)*"b"*	No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies.
Prefiltration Toolbox Options		
Presedimentation basin with coagulation	43.11(10)*"a"*	0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative department-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through the basins.
Two-stage lime softening	43.11(10)*"b"*	0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment.
Bank filtration	43.11(10)*"c"*	0.5-log credit for 25-foot setback; 1.0-log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent fines; average turbidity in wells must be less than 1 NTU. A system using a well followed by filtration when conducting source water monitoring must sample the well to determine bin classification and is not eligible for additional credit.
Treatment Performance Toolbox Options		
Combined filter performance	43.11(11)*"a"*	0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month.
Individual filter performance	43.11(11)*"b"*	0.5-log credit (in addition to the 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter.
Demonstration of performance	43.11(11)*"c"*	Credit awarded to unit process or treatment train based on a demonstration to the department with a department-approved protocol.
Additional Filtration Toolbox Options		
Bag or cartridge filters (individual filters)	43.11(12)*"a"*	Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety.
Bag or cartridge filters (in series)	43.11(12)*"a"*	Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety.

Toolbox Option	Specific Criteria Rule	*Cryptosporidium* treatment credit with design and implementation criteria
Membrane filtration	43.11(12)*"b"*	Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing.
Second-stage filtration	43.11(12)*"c"*	0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter.
Slow sand filtration	43.11(12)*"d"*	2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option.
Inactivation Toolbox Options		
Chlorine dioxide	43.11(13)	Log credit based on measured CT in relation to CT table.
Ozone	43.11(13)	Log credit based on measured CT in relation to CT table.
Ultraviolet light (UV)	43.11(13)	Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions.

43.11(9) *Source toolbox components.*

a. Watershed control program. Systems receive 0.5-log *Cryptosporidium* treatment credit for implementing a watershed control program that meets the requirements of this paragraph.

(1) Notification. Systems that intend to apply for the watershed control program credit must notify the department of this intent no later than two years prior to the treatment compliance date in 43.11(7) applicable to the system.

(2) Proposed watershed control plan. Systems must submit to the department a proposed watershed control plan no later than one year before the applicable treatment compliance date in 43.11(7). The department must approve the watershed control plan for the system to receive watershed control program treatment credit. The watershed control plan must include the following elements:

1. Identification of an "area of influence" outside of which the likelihood of *Cryptosporidium* or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under 43.11(9)*"a"*(5)"2."

2. Identification of both potential and actual sources of *Cryptosporidium* contamination and an assessment of the relative impact of these sources on the system's source water quality.

3. An analysis of the effectiveness and feasibility of control measures that could reduce *Cryptosporidium* loading from sources of contamination to the system's source water.

4. A statement of goals and specific actions the system will undertake to reduce source water *Cryptosporidium* levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

(3) Existing watershed control programs. Systems with watershed control programs that were in place on January 5, 2006, are eligible to seek this credit. The systems' watershed control plans must meet the criteria in 43.11(9)*"a"*(2) and must specify ongoing and future actions that will reduce source water *Cryptosporidium* levels.

(4) Department response to submitted plan. If the department does not respond to a system regarding approval of a watershed control plan submitted under this subrule and the system meets the other requirements of this subrule, the watershed control program will be considered approved and 0.5-log *Cryptosporidium* treatment credit will be awarded unless and until the department subsequently withdraws such approval.

(5) System requirements to maintain 0.5-log credit. Systems must complete the following actions to maintain the 0.5-log credit.

1. Submit an annual watershed control program status report to the department. The annual watershed control program status report must describe the system's implementation of the approved plan and assess the adequacy of the plan to meet its goals. The plan must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the department or as a result of the watershed survey conducted under 43.11(9)*"a"*(5)"2." It must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation that making a significant change to its approved watershed control program is necessary, the system must notify the department prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must also list in its notification the actions the system will take to mitigate this effect.

2. Undergo a watershed sanitary survey every three years for community water systems and every five years for noncommunity water systems and submit the survey report to the department. The survey must be conducted according to department guidelines and by persons acceptable to the department.

- The watershed sanitary survey must meet the following criteria: encompass the region identified in the department-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water *Cryptosporidium* levels; and identify any significant new sources of *Cryptosporidium.*
- If the department determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by the date specified by the department, which may be earlier than the regular schedule of a three- or five-year frequency.

3. The system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The department may approve systems to withhold portions of an annual status report, watershed control plan, and watershed sanitary survey from the public, based on water supply security considerations.

(6) Withdrawal of watershed control program treatment credit. If the department determines that a system is not carrying out the approved watershed control plan, the department may withdraw the watershed control program treatment credit.

b. Alternative source. A system may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the department approves, a system may determine its bin classification under 43.11(5) based on alternative source monitoring results.

(1) Systems conducting alternative source monitoring must also monitor their current plan intake concurrently, as described in 43.11(3).

(2) Alternative source monitoring must meet the requirements for source monitoring to determine bin classification, as described in 43.11(3). Systems must report to the department the alternative source monitoring results and provide supporting information documenting the operating conditions under which the samples were collected.

(3) If a system determines its bin classification under 43.11(5) using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in 43.11(7).

43.11(10) *Prefiltration treatment toolbox components.*

a. Presedimentation. Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this paragraph.

(1) The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or influenced groundwater source.

(2) The system must continuously add a coagulant to the presedimentation basin.

(3) The presedimentation basin must achieve either of the following performance criteria:

1. Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent and must be calculated as follows: LOG_{10}(monthly mean of daily influent turbidity) – LOG_{10}(monthly mean of daily effluent turbidity).

2. Complies with department-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

b. Two-stage lime softening. Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or influenced groundwater source.

c. Bank filtration. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when they begin source water monitoring under 43.11(3)*"a"* must collect samples as described in 43.11(3)*"d"*(3) and are not eligible for this credit.

(1) Treatment credit. Wells with a groundwater flow path of at least 25 feet receive 0.5-log treatment credit; wells with a groundwater flow path of at least 50 feet receive 1.0-log treatment credit. The groundwater flow path must be determined as specified in 43.11(10)*"c"*(4).

(2) Granular aquifers only. Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

(3) Horizontal and vertical wells only. Only horizontal and vertical wells are eligible for treatment credit.

(4) Measurement of groundwater flow path. For vertical wells, the groundwater flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100-year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the groundwater flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(5) Turbidity monitoring at the wellhead. Systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the department and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the department determines that microbial removal has been compromised, the department may revoke treatment credit until the system implements corrective actions approved by the department to remediate the problem.

43.11(11) *Treatment performance toolbox components.* This option pertains to physical treatment processes.

a. Combined filter performance. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in 43.5(4) and, if applicable, 43.10(4).

b. Individual filter performance. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph, which can be in addition to the CFE 0.5-log credit from 43.11(11)*"a."* Compliance with these criteria must be based on individual filter turbidity monitoring as described in 43.9(4) or 43.10(5), as appropriate.

(1) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

(2) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

(3) Any system that has received treatment credit for individual filter performance and fails to meet the requirements of 43.11(11)*"b"*(2) and (3) during any month shall not receive a treatment technique violation under 43.11(6) if the department determines the following:

1. The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing the treatment plant design, operation, and maintenance.

2. The system has experienced no more than two such failures in any calendar year.

c. Demonstration of performance. The department may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than or less than the prescribed treatment credits in 43.11(6) or 43.11(10) through 43.11(13) and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

(1) Systems cannot receive the prescribed treatment credit for any toolbox option in 43.11(10) through 43.11(13) if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.

(2) The demonstration of performance study must follow a department-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system.

(3) Approval by the department must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The department may designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

43.11(12) *Additional filtration toolbox components.*

a. Bag and cartridge filters. By meeting the criteria in this paragraph, systems receive *Cryptosporidium* treatment credit of up to 2.0-log for the use of individual bag or cartridge filters and up to 2.5-log for the use of bag or cartridge filters operated in series. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of 43.11(12)*"a"*(2) through 43.11(12)*"a"*(9) to the department. The filters must treat the entire plant flow taken from a surface water or influenced groundwater source.

(1) The *Cryptosporidium* treatment credit awarded for use of bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted in accordance with the criteria in 43.11(12)*"a"*(2) through 43.11(12)*"a"*(9). A safety factor equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit. Systems may use results from challenge testing conducted prior to January 5, 2006, if the prior testing was consistent with the criteria specified in this paragraph.

(2) Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium*. Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

(3) Challenge testing must be conducted using *Cryptosporidium* or a surrogate that is removed no more efficiently than *Cryptosporidium*. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discretely quantifying the specific microorganisms or surrogate used in the test; gross measurements such as turbidity shall not be used.

(4) The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using this equation:

Maximum Feed Water Concentration = 10,000 × Filtrate Detection Limit

(5) Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

(6) Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which thereby establishes the maximum pressure drop under which the filter may be used to comply with the requirements of this paragraph.

(7) Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during challenge test;

C_f = the feed concentration measured during the challenge test; and

C_p = the filtrate concentration measured during the challenge test.

Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p must be set equal to the detection limit.

(8) Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.

(9) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the tenth percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by [i/(n+1)] where "i" is the rank of "n" individual data points ordered lowest to highest. If necessary, the tenth percentile may be calculated using linear interpolation.

(10) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted to the department.

b. Membrane filtration.

(1) Systems receive *Cryptosporidium* treatment credit for using membrane filtration that meets the criteria of this paragraph. Systems using membrane cartridge filters that meet the definition of membrane filtration in 567—40.2(455B) are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under the following two paragraphs:

1. The removal efficiency demonstrated during challenge testing conducted under the criteria in 43.11(12)*"b"*(2).

2. The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in 43.11(12)*"b"*(3).

(2) Challenge testing. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the department. Challenge testing must be conducted according to the criteria listed in this subparagraph. Systems may use data from challenge testing conducted prior to January 5, 2006, if the prior testing was consistent with the criteria listed in this subparagraph.

1. Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

2. Challenge testing must be conducted using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organisms or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge

particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity shall not be used.

3. The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

Maximum Feed Water Concentration = 3,160,000 × Filtrate Detection Limit

4. Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure-driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

5. Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation:

$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during challenge test;

C_f = the feed concentration measured during the challenge test; and

C_p = the filtrate concentration measured during the challenge test.

Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p must be set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

6. The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the tenth percentile of the representative LRVs among the modules tested. The percentile is defined by [i/(n+1)] where "i" is the rank of "n" individual data points ordered lowest to highest. If necessary, the tenth percentile may be calculated using linear interpolation.

7. The challenge test must establish a quality control release value (QCRV) for a nondestructive performance test that demonstrates the *Cryptosporidium* removal capability of the membrane filtration module. In order to verify *Cryptosporidium* removal capability, this performance test must be applied to each production membrane module that was not directly challenge tested but was used by the system. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

8. If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the nondestructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of the modified membrane must be conducted and submitted to the department, along with determination of a new QCRV.

(3) Direct integrity testing. Systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded for the membrane filtration process and meets the requirements described in this subparagraph. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate).

1. The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

2. The direct integrity method must have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

3. The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded by the department for the membrane filtration process, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either of the following paragraphs as applicable to the type of direct integrity test the system uses.

- For direct integrity tests using applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:

$LRV_{DIT} = LOG_{10} [Q_p/(VCF \times Q_{breach})]$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test;

Q_p = total design filtrate flow from the membrane unit;

Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured; and

VCF = volumetric concentration factor, which is the ratio of the suspended solids concentration on the high-pressure side of the membrane relative to that in the feed water.

- For direct integrity tests using a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

$LRV_{DIT} = LOG_{10} (C_f) – LOG_{10} (C_p)$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test;

C_f = the typical feed concentration of the marker used in the test; and

C_p = the filtrate concentration of the marker from an integral membrane unit.

4. Systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the department.

5. If the result of a direct integrity test exceeds the control limit established under 43.11(12)*"b"*(3)"4," the system must remove the membrane unit from service. Systems must conduct a direct integrity test to verify any repairs and may return the membrane unit to service only if the direct integrity test is within the established control limit.

6. Systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The department may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for *Cryptosporidium*, or reliable process safeguards.

(4) Indirect integrity monitoring. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the following criteria. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous direct integrity testing of membrane units in accordance with the criteria in 43.11(12)*"b"*(3) is not subject to the requirements for continuous indirect integrity monitoring. Systems must submit a monthly report to the department summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

1. Unless the department approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

2. Continuous monitoring must be conducted at a frequency of no less than once every 15 minutes.

3. Continuous monitoring must be separately conducted on each membrane unit.

4. If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified in 43.11(12)*"b"*(3)"1" through 43.11(12)*"b"*(3)"5."

5. If indirect integrity monitoring includes a department-approved alternative parameter and if the alternative parameter exceeds a department-approved control limit for a period greater than 15 minutes,

direct integrity testing must immediately be performed on the associated membrane units as specified in 43.11(12)*"b"*(3)"1" through 43.11(12)*"b"*(3)"5."

c. Second-stage filtration. Systems receive 0.5-log *Cryptosporidium* treatment credit for using a separate second stage of filtration that consists of sand, dual media, GAC, or other fine-grain media following granular media filtration if the department approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a surface water or influenced groundwater source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The department must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

d. Slow sand filtration (as secondary filter). Systems are eligible to receive 2.5-log *Cryptosporidium* treatment credit for using a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or influenced groundwater source and no disinfectant residual is present in the influent water to the slow sand filtration process. The department must base its approval of the treatment credit on an assessment of the design characteristics of the filtration process. This does not apply to treatment credit awarded for slow sand filtration used as a primary filtration process.

43.11(13) *Inactivation toolbox components.*

a. Calculation of CT values.

(1) CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under 43.11(13)*"b"* or *"c"* must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in 43.5(4).

(2) Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measureable disinfectant residual level and a liquid volume. Under this approach, systems must add the *Cryptosporidium* CT values in each segment to determine the total CT for the treatment plant.

b. CT values for chlorine dioxide and ozone.

(1) As described in 43.11(13)*"a,"* systems receive the *Cryptosporidium* treatment credit listed in Table 1 of Appendix B by meeting the corresponding chlorine dioxide CT value for the applicable water temperature.

(2) As described in 43.11(13)*"a,"* systems receive the *Cryptosporidium* treatment credit listed in Table 2 of Appendix B by meeting the corresponding ozone CT value for the applicable water temperature.

c. Site-specific study. The department may approve alternative chlorine dioxide or ozone CT values to those listed in 43.11(13)*"b"* on a site-specific basis. The department must base its approval on a site-specific study conducted by the system. The study must follow a department-approved protocol.

d. Ultraviolet light. Systems receive *Cryptosporidium*, *Giardia lamblia*, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in Table 3 of Appendix B. Systems must use the following procedures to validate and monitor UV reactors in order to demonstrate that the reactors are achieving a particular UV dose value for treatment credit.

(1) Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the required UV dose (i.e., validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

1. When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.

2. Validation testing must include the following: full-scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low-pressure mercury vapor lamp.

3. The department may approve an alternative approach to validation testing.

(2) Reactor monitoring.

1. Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under 43.11(13)*"d"*(1). This monitoring must include UV sensor, flow rate, lamp status, and other parameters the department designates based on UV reactor operation. Systems must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol approved by the department.

2. To receive treatment credit for UV light, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose. Systems must demonstrate compliance with this condition by the monitoring required under 43.11(13)*"d"*(2)"1."

43.11(14) *Reporting requirements.*

a. Sampling schedules and monitoring results. Systems must report source water sampling schedules and monitoring results under 43.11(3)*"c"* and 43.11(3)*"e,"* unless the systems notify the department that they will not conduct source water monitoring due to meeting the criteria of 5.5-log treatment for *Cryptosporidium* under 43.11(3)*"a."*

b. Cryptosporidium bin classification. Systems must report their *Cryptosporidium* bin classification determined under 43.11(5).

c. Disinfection profiles and benchmarks. Systems must report disinfection profiles and benchmarks to the department as described in 43.11(4)*"a"* and 43.11(4)*"b"* prior to making a significant change in disinfection practice.

d. Microbial toolbox options. Systems must report to the department in accordance with Table 7 for any microbial toolbox options used to comply with treatment requirements under 43.11(6).

Table 7: Microbial Toolbox Reporting Requirements

Toolbox Option	Systems must submit this information	Information must be submitted on this schedule
1. Watershed control program	Notice of intention to develop a new or continue an existing watershed control program	No later than two years before the applicable treatment compliance date in 43.11(7)
	Watershed control plan	No later than one year before the applicable treatment compliance date in 43.11(7)
	Annual watershed control program status report	Every 12 months, beginning one year after the applicable treatment compliance date in 43.11(7)
	Watershed sanitary survey report	- For community water systems, every three years beginning three years after the applicable treatment compliance date in 43.11(7) - For noncommunity water systems, every five years beginning five years after the applicable treatment compliance date in 43.11(7)
2. Alternative source/intake management	Verification that system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results	No later than the applicable treatment compliance date in 43.11(7)

Toolbox Option	Systems must submit this information	Information must be submitted on this schedule
3. Presedimentation	Monthly verification of the following: - Continuous basin operation - Treatment of 100 percent of the flow - Continuous addition of a coagulant - At least 0.5-log mean reduction of influent turbidity or compliance with alternative department-approved performance criteria	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
4. Two-stage lime softening	Monthly verification of the following: - Chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration - Both stages treated 100 percent of plant flow	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
5. Bank filtration	Initial demonstration of the following: - Unconsolidated, predominantly sandy aquifer - Setback distance of at least 25 feet for 0.5-log credit or 50 feet for 1.0-log credit	No later than the applicable treatment compliance date in 43.11(7)
	If monthly average of daily maximum turbidity is greater than 1 NTU, then system must report result and submit an assessment of the cause.	Report within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
6. Combined filter performance	Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the 4-hour CFE measurements taken each month	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
7. Individual filter performance	Monthly verification of the following: - Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter - No individual filter effluent turbidity levels greater than 0.3 NTU in two consecutive readings 15 minutes apart	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
8. Demonstration of performance	Results from testing following a department-approved protocol	No later than the applicable treatment compliance date in 43.11(7)
	As required by the department, monthly verification of operation within conditions of department approval for demonstration of performance credit	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
9. Bag filters and cartridge filters	Demonstration that the following criteria are met: - Process meets the definition of bag or cartridge filtration - Removal efficiency established through challenge testing that meets criteria in this subpart	No later than the applicable treatment compliance date in 43.11(7)
	Monthly verification that 100 percent of plant flow was filtered	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)

Toolbox Option	Systems must submit this information	Information must be submitted on this schedule
10. Membrane filtration	Results of verification testing demonstrating the following: - Removal efficiency established through challenge testing that meets criteria - Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline	No later than the applicable treatment compliance date in 43.11(7)
	Monthly report summarizing the following: - All direct integrity tests above the control limit - If applicable, any turbidity or alternative department-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
11. Second-stage filtration	Monthly verification that 100 percent of flow was filtered through both stages and that first stage was preceded by coagulation step	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
12. Slow sand filtration as a secondary filter	Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100 percent of the flow from surface or influenced groundwater sources	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
13. Chlorine dioxide	Summary of CT values for each day as described in 43.11(13)	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
14. Ozone	Summary of CT values for each day as described in 43.11(13)	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
15. Ultraviolet light (UV)	Validation test results demonstrating operating conditions that achieve required UV dose	No later than the applicable treatment compliance date in 43.11(7)
	Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in 43.11(13)*"d"*	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)

43.11(15) *Record-keeping requirements.*

a. Source water monitoring records. Systems must keep results from the initial round of source water monitoring under 43.11(3)*"a"* and the second round of source water monitoring under 43.11(3)*"b"* until three years after bin classification under 43.11(5) for the particular round of monitoring.

b. Systems meeting 5.5-log treatment for Cryptosporidium. Systems must keep for three years records of any notification to the department that the systems will meet the 5.5-log *Cryptosporidium* treatment requirements and avoid source water monitoring.

c. Microbial toolbox treatment monitoring records. Systems must keep the results of treatment monitoring associated with microbial toolbox options under 43.11(8) through 43.11(13) for three years.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—43.12(455B) Optimization goals.

43.12(1) *Turbidity optimization goals.* Surface water and IGW systems must meet the requirements listed in 567—43.5(455B), 567—43.9(455B), and 567—43.10(455B). To encourage operational optimization, the department has adopted the following goals for systems using surface water or influenced groundwater and that wish to pursue the optimization of their existing treatment processes. These goals are voluntary. Data collected for optimization purposes will not be used to determine compliance with the requirements in 567—43.5(455B), 567—43.9(455B), 567—43.10(455B), or 567—43.11(455B) unless the optimization data are identical to the compliance data.

a. Sedimentation performance goals. The sedimentation performance goals are based upon the average annual raw water turbidity levels.

(1) When the annual average raw water turbidity is less than or equal to 10 NTU over the course of the calendar year, the turbidity should be less than or equal to 1 NTU in at least 95 percent of measurements based on the maximum daily value of readings taken at least once every four hours from each sedimentation basin while the plant is operating.

(2) When the annual average raw water turbidity is more than 10 NTU over the course of the calendar year, the turbidity should be less than or equal to 2 NTU in at least 95 percent of measurements based on the maximum daily value of readings taken at least once every four hours from each sedimentation basin while the plant is operating.

b. Individual filter performance goals. The individual filter performance goals depend upon the system's capability of filtering to waste.

(1) For systems that have the capability of filtering to waste, the individual filter turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, based on the daily maximum value of readings recorded at least once per minute while the plant is in operation. The maximum individual filter turbidity must not exceed 0.30 NTU at any time. The filter must return to service with a turbidity of 0.10 NTU or less.

(2) For systems that do not have the capability of filtering to waste, the individual filter turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, excepting the 15 minutes following the completion of the backwash process, based on the daily maximum value of readings recorded at least once per minute while the plant is in operation. The maximum individual filter turbidity must not exceed 0.30 NTU following backwash and must return to a level at or below 0.10 NTU within 15 minutes of returning the filter to service.

c. Combined filter performance goal. The combined filter performance goal has two components:

(1) Combined filter effluent turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, based on daily maximum value of readings recorded at least once per minute while the plant is operating.

(2) The maximum individual filter turbidity must not exceed 0.30 NTU at any time.

43.12(2) *Disinfection optimization goals.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

TABLE A: SEPARATION DISTANCES FROM WELLS
Rescinded IAB 1/7/04, effective 2/11/04

TABLE B
Minimum Self-Monitoring Requirements
Public Water Supply Systems
[Prior to 12/12/90, appeared in 567—Ch 41, Table D]
Rescinded IAB 8/11/99, effective 9/15/99

APPENDIX A: $CT_{99.9}$ TABLES FOR DISINFECTION PROFILING

TABLE 1: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 0.5°C or Lower[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	137	163	195	237	277	329	390
0.6	141	168	200	239	286	342	407
0.8	145	172	205	246	295	354	422
1.0	148	176	210	253	304	365	437
1.2	152	180	215	259	313	376	451
1.4	155	184	221	266	321	387	464
1.6	157	189	226	273	329	397	477
1.8	162	193	231	279	338	407	489
2.0	165	197	236	286	346	417	500
2.2	169	201	242	297	353	426	511
2.4	172	205	247	298	361	435	522
2.6	175	209	252	304	368	444	533
2.8	178	213	257	310	375	452	543
3.0	181	217	261	316	382	460	552

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 2: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 5.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	97	117	139	166	198	236	279
0.6	100	120	143	171	204	244	291
0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368
2.6	122	146	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	389

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 3: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 10.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	73	88	104	125	149	177	209
0.6	75	90	107	128	153	183	218
0.8	78	92	110	131	158	189	226
1.0	79	94	112	134	162	195	234
1.2	80	95	114	137	166	200	240
1.4	82	98	116	140	170	206	247
1.6	83	99	119	144	174	211	253
1.8	86	101	122	147	179	215	259
2.0	87	104	124	150	182	221	265
2.2	89	105	127	153	186	225	271
2.4	90	107	129	157	190	230	276
2.6	92	110	131	160	194	234	281
2.8	93	111	134	163	197	239	287
3.0	95	113	137	166	201	243	292

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 4: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 15.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	64	76	92	111	134	160
1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	98	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 5: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 20.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	36	44	52	62	74	89	105
0.6	38	45	54	64	77	92	109
0.8	39	46	55	66	79	95	113
1.0	39	47	56	67	81	98	117
1.2	40	48	57	69	83	100	120
1.4	41	49	58	70	85	103	123
1.6	42	50	59	72	87	105	126
1.8	43	51	61	74	89	108	129
2.0	44	52	62	75	91	110	132
2.2	44	53	63	77	93	113	135
2.4	45	54	65	78	95	115	138
2.6	46	55	66	80	97	117	141
2.8	47	56	67	81	99	119	143
3.0	47	57	68	83	101	122	146

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 6: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 25.0°C and Higher[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	24	29	35	42	50	59	70
0.6	25	30	36	43	51	61	73
0.8	26	31	37	44	53	63	75
1.0	26	31	37	45	54	65	78
1.2	27	32	38	46	55	67	80
1.4	27	33	39	47	57	69	82
1.6	28	33	40	48	58	70	84
1.8	29	34	41	49	60	72	86
2.0	29	35	41	50	61	74	88
2.2	30	35	42	51	62	75	90
2.4	30	36	43	52	63	77	92
2.6	31	37	44	53	65	78	94
2.8	31	37	45	54	66	80	96
3.0	32	38	46	55	67	81	97

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 7: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Chlorine Dioxide and Ozone[1]

Disinfectant	Temperature, °C					
	<1	5	10	15	20	≥25
Chlorine Dioxide	63	26	23	19	15	11
Ozone	2.9	1.9	1.4	0.95	0.72	0.48

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

TABLE 8: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Chloramines[1]

Disinfectant	Temperature, °C					
	<1	5	10	15	20	25
Chloramines	3800	2200	1850	1500	1100	750

[1]These values are for pH values of 6 to 9. These CT values may be assumed to achieve greater than 99.99 percent inactivation of viruses only if chlorine is added and mixed in the water prior to the addition of ammonia. If this condition is not met, the system must demonstrate, based on on-site studies or other information, as approved by the department, that the system is achieving at least 99.99 percent inactivation of viruses. Any CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

APPENDIX B: CT TABLES FOR *CRYPTOSPORIDIUM* INACTIVATION

TABLE 1: CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Chlorine Dioxide[1]

Log Credit	Water Temperature, °C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

[1]Systems may use this equation to determine log credit between the indicated values:

Log credit = $[0.001506 \times (1.09116)^{Temp}] \times CT$

TABLE 2: CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Ozone[1]

Log Credit	Water Temperature, °C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

[1]Systems may use this equation to determine log credit between the indicated values:

Log credit = $[0.0397 \times (1.09757)^{Temp}] \times CT$

TABLE 3: UV Dose for *Cryptosporidium*, *Giardia lamblia*, and Virus Inactivation Credit[1]

Log Credit	*Cryptosporidium* UV dose (mJ/cm^2)	*Giardia lamblia* UV dose (mJ/cm^2)	Virus UV dose (mJ/cm^2)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

[1]The treatment credits listed in Table 3 are for UV light at a wavelength of 254 nm as produced by a low-pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing. The UV dose values in this table are applicable only to post-filter applications of UV in filtered systems.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

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[1] Effective date of 43.2(3)*"b"*(1) to (9) and 43.3(3)*"b"*(1) and (2) delayed until adjournment of the 1995 General Assembly by the Administrative Rules Review Committee at its meeting held March 13, 1995.

CHAPTER 83
LABORATORY CERTIFICATION
[Prior to 4/10/96, see 567—Chapter 42]

PART A
GENERAL

567—83.1(455B) Authority, purpose, and applicability.

83.1(1) *Authority.* Pursuant to Iowa Code section 455B.113, a laboratory certification program is required for laboratories performing analyses of samples which are required to be submitted to the department as a result of Iowa Code provisions, rules, operation permits, or administrative orders. Pursuant to Iowa Code section 455B.114, the department may suspend or revoke the certification of a laboratory upon determination of the department that the laboratory no longer fulfills one or more of the requirements for certification.

83.1(2) *Purpose.* The purpose of these rules is to provide the procedures for laboratories to use to apply for certification, to establish laboratory certification fees, to maintain certification, and to provide the appropriate methods and references for evaluating laboratory competence including the requirements for laboratories to become certified.

83.1(3) *Applicability to environmental program areas.*

a. Water supply (drinking water). The requirements of this chapter apply to all laboratories conducting drinking water analyses pursuant to 567—Chapters 40, 41, 42, and 43. Routine, on-site monitoring for alkalinity, calcium, conductivity, residual disinfectant, orthophosphate, pH, silica, temperature, turbidity and on-site operation and maintenance-related analytical monitoring are excluded from this requirement, and may be performed by a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, any person under the supervision of a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform water supply analyses under this chapter.

b. Underground storage tanks. The requirements of this chapter also apply to all laboratories conducting underground storage tank analyses for petroleum constituents pursuant to 567—Chapter 135. Routine on-site monitoring conducted by or for underground storage tank owners for leak detection or a nonregulatory purpose is excluded from this requirement.

c. Wastewater. The requirements of this chapter also apply to all laboratories conducting analyses of wastewater, groundwater or sewage sludge pursuant to 567—Chapters 63, 67, and 69. Routine on-site monitoring for pH, temperature, dissolved oxygen, total residual chlorine and other pollutants that must be analyzed immediately upon sample collection, settleable solids, physical measurements such as flow and cell depth, and operational monitoring tests specified in 567—subrule 63.3(4) are excluded from this requirement.

d. Solid waste and contaminated sites. The requirements of this chapter also apply to all laboratories conducting analyses of solid waste parameters pursuant to 567—Chapters 100 through 130, contaminated site parameters pursuant to 567—Chapters 133 and 137, and regulated substances other than petroleum parameters regulated under 567—Chapter 135. Any parameter that must be analyzed immediately upon sample collection is excluded from the requirements of this chapter. Any samples collected or testing conducted that is not part of the specific monitoring required by the department for regulatory purposes are also excluded from the requirements of this chapter.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—83.2(455B) Definitions.

"Certified" means a laboratory demonstrates to the satisfaction of the department its ability to consistently produce valid data within the acceptance limits as specified within the department's requirements for certification and meets the minimum requirements of this chapter and all applicable regulatory requirements. A laboratory may be certified for an analyte, an analytical series, or an environmental program area, except in the UST program area, where certification for individual analytes is not allowed.

"Environmental program area" means the water supply (drinking water) program, underground storage tank program, wastewater program, or solid waste and contaminated site program pursuant to 83.1(3).

"Manual for the Certification of Laboratories Analyzing Environmental Samples for the Iowa Department of Natural Resources" (2003) (Iowa Manual) is incorporated by reference in this chapter.

Chapter 1 of the Iowa Manual pertains to certification of laboratories analyzing samples of drinking water and incorporates by reference the Manual for the Certification of Laboratories Analyzing Drinking Water, 4th edition, March 1997, EPA document 815-B-97-001.

Chapter 2 of the Iowa Manual, 2003, pertains to laboratories analyzing samples for the underground storage tank program.

Chapter 3 of the Iowa Manual, 2003, pertains to laboratories analyzing samples for wastewater and sewage sludge disposal programs.

Chapter 4 of the Iowa Manual, 2003, pertains to laboratories analyzing samples for the solid waste and contaminated site programs.

"Performance evaluation (PE) sample" means a reference sample provided to a laboratory for the purpose of demonstrating that a laboratory can successfully analyze the sample within limits of performance specified by the department. The true value of the concentration of the reference material is unknown to the laboratory at the time of analysis. A PE sample may also be referred to as a proficiency testing sample or PT sample.

"Provisional certification" means a laboratory has deficiencies, which must be corrected within the specified time frames listed in 83.7(2)*"d,"* but demonstrates to the satisfaction of the department its ability to consistently produce valid data within the acceptance limits as specified within the department's certification requirements.

"Revoked certification" means a laboratory no longer fulfills the requirements of this chapter, and certification is revoked by the director upon determination of the director that the laboratory no longer fulfills the requirements for certification (455B.114).

"Suspended certification" means a temporary suspension of certification for a laboratory, conditional upon meeting the time frames in 83.7(4)*"d"* for the correction of the deficiency.

"Temporary certification" means short-term transitional certification granted in certain circumstances when the department implements certification in a new environmental program area.

PART B
CERTIFICATION PROCESS

567—83.3(455B) Application for laboratory certification.

83.3(1) *Application forms.* Application for laboratory certification, other than for temporary certification, shall be made on forms provided by the department and shall be accompanied by the nonrefundable fee specified in 83.3(2). The application for renewal of certification shall be made at least 60 days prior to the certification expiration date. The department may require submission of additional information necessary to evaluate the application. All required documentation must be supplied to the department prior to the on-site visit. Failure to submit a complete application may result in denial of the renewal.

83.3(2) *Fees and expenses.*

a. A nonrefundable fee for the administration, completion of on-site laboratory surveys and assessments, and enforcement of laboratory certification requirements shall be paid with the certification application.

(1) The on-site visit will not be conducted and certification will not be issued until the fees and expenses are paid and all other certification requirements are met. The fee for certification will not be refunded if an on-site visit is not performed.

(2) Out-of-state laboratories will be responsible for paying the expenses of an on-site visit, in addition to the standard certification fee if required, and the department or its agent will bill the out-of-state laboratory directly for the expenses.

(3) When a laboratory's certification is changed to "provisional" or "suspended" and the period for correcting deficiencies extends beyond the certification period, the laboratory must continue to pay the required fees in order to maintain its certification status.

(4) Additional fees. Additional fees will be assessed for the following, and the department or its agent will bill the laboratory directly.

1. The laboratory is responsible for paying for any additional on-site visits, at a fee of $300 per visit. An example of this is when an additional on-site visit is required when a laboratory seeks certification for an entirely new set of parameters for which it had previously not been certified.

2. When an on-site visit is required to inspect for deficiencies that the laboratory has been required to correct, the fee is $500 per visit.

b. Certification in multiple environmental program areas. Where a laboratory is certified for the same analyte in more than one environmental program area, the laboratory must meet all the applicable certification requirements in addition to the payment of the fees.

c. The applicable fees shall be based on the type of analytical service provided as follows:

ANALYTICAL GROUP	REGULATORY PROGRAM & PARAMETERS[1]	FEE
Asbestos	SDWA	$400
Basic Drinking Water	SDWA (includes total and fecal coliform bacteria, *E. coli*, heterotrophic plate count, nitrate, nitrite, and fluoride)	$800
Basic Wastewater	CWA (includes BOD5, cBOD5, total suspended solids, and ammonia)	$400
Bacteria	CWA (includes total coliform, fecal coliform, and enterococci bacteria)	$800
	SDWA (includes total coliform, fecal coliform, *E. coli*, and heterotrophic plate count)	$800
	SDWA & CWA combined	$1,300
Dioxin	SDWA	$800
Effluent Toxicity Testing	CWA	$800
Inorganics, including metals	CWA metals, inorganic compounds, and physical characteristics ($400 per analyte up to a maximum of $1,600)	$400 to 1,600
	SDWA (includes metals, nitrate, nitrite, ammonia, cyanide, fluoride, bromate, bromide, chlorite, and total organic carbon)	$1,600
	SW/CS	$1,600
	CWA & SDWA combined	$2,400
	CWA & SW/CS combined	$2,400
	CWA, SDWA, and SW/CS combined	$2,800
Radionuclides	CWA	$400
	SDWA (includes gross alpha, gross beta, photon emitters, radium, strontium, tritium, and uranium)	$400
	SDWA & CWA combined	$650

ANALYTICAL GROUP	REGULATORY PROGRAM & PARAMETERS[1]	FEE
Synthetic Organic Chemicals (SOC)	CWA	$1,600
	SDWA	$1,600
	SW/CS	$1,600
	CWA & SDWA combined	$2,400
	CWA & SW/CS combined	$2,400
	CWA, SDWA, and SW/CS combined	$2,800
Volatile Organic Chemicals (VOC)	CWA	$1,600
	SDWA	$1,600
	SW/CS	$1,600
	CWA & SDWA combined	$2,400
	CWA & SW/CS combined	$2,400
	CWA, SDWA, and SW/CS combined	$2,800
Underground Storage Tank Program Methods (UST)	OA1 and OA2 for UST, CWA, & SW/CS programs	$1,600
	OA1, OA2, PAH, and Air Gas for UST, CWA, & SW/CS programs	$2,000
Other analyte[2]	SDWA, CWA, UST, or SW/CS	$400 per analyte

[1]CWA: Analysis of wastewater samples for the federal Clean Water Act.

SDWA: Analysis of drinking water samples for the federal Safe Drinking Water Act.

SW/CS: Analysis of water, soil, or solid samples for the solid waste or contaminated sites programs.

UST: Analysis of water and soil samples for the underground storage tank program.

[2]The fee for an additional analyte may be charged at the discretion of the appraisal authority.

d. Payment of fees. Fees shall be paid by bank draft, check, money order, or other means acceptable to the department, made payable to the Iowa Department of Natural Resources. Purchase orders are not an acceptable form of payment.

83.3(3) *Reciprocity.* Reciprocal certification of out-of-state laboratories by Iowa, and of Iowa laboratories by other states or accreditation providers, is encouraged. A laboratory must meet all Iowa certification criteria and pay all applicable fees as listed in this chapter. Any laboratory which is granted reciprocal certification in Iowa using primary certification from another state or provider is required to report any change in certification status from the accrediting state or provider to the department within 14 days of notification. A laboratory that loses primary certification, either in its resident state program or third-party accreditation program, will also immediately lose certification for the same program area and parameters in Iowa, pursuant to 83.7(5)*"a"*(9).

a. Out-of-state laboratories. Where an out-of-state laboratory has received an on-site visit within its own state, the fee for certification shall not be reduced if an on-site visit is not performed by Iowa.

b. Third-party accreditation. The department may accept third-party accreditation from national accreditation providers on an individual basis.

567—83.4(455B) Procedure for initial certification for laboratories analyzing solid waste and contaminated site program parameters.

83.4(1) *Implementation process.* All laboratories seeking certification to perform solid waste or contaminated site analyses shall provide a letter of intent requesting certification from the department. The letter shall include a statement that the laboratory is capable of performing the analyses for which certification is requested and that the laboratory intends to participate in blind PE testing using the approved methods.

a. Letter of intent. Laboratories submitting a letter of intent by April 1, 2004, will be issued a letter granting temporary certification. The temporary certification will be effective until the laboratory

is certified through the on-site visit. Laboratories submitting applications after April 1, 2004, will not be issued temporary certification and must apply for certification as provided for in 567—83.5(455B). Temporary certification will be denied if a laboratory fails to submit a completed application with the appropriate fee for full certification within the time frame established by the department.

b. Application. The department or its designee will schedule an on-site visit for each laboratory with temporary certification unless the on-site visit is waived by the department as provided by the reciprocity agreements pursuant to 83.4(1)*"d."* The department will request a completed application from the laboratory at least 60 days prior to the on-site visit. The completed application and the correct fee must be received by the department no later than 30 days before the on-site visit. Temporary certification will be denied and the on-site visit will not take place if the application is not complete and the fee is not timely received.

c. Performance evaluation (PE) testing. Participation in PE testing using the approved method(s) for which certification is requested must be initiated within 30 days after the laboratory submits the letter of intent. PEs consist of analyzing product-spiked samples in a particular matrix provided by the testing organization to determine if a laboratory's analytical results are within the acceptance range. Acceptable results on the PE are required in order for the laboratory to receive final certification. Temporary certification will be denied if the laboratory fails to initiate the PE. An independent performance testing organization meeting the requirements of Chapter 4 in the "Manual for the Certification of Laboratories Analyzing Environmental Samples for the Iowa Department of Natural Resources" (2003) must be used.

d. On-site visits. Upon application to the department by a laboratory with temporary certification, the director or designee will contact the laboratory and a date will be established for an on-site visit. The criteria given in the "Manual for the Certification of Laboratories Analyzing Environmental Samples for the Iowa Department of Natural Resources" (2003), specifically Chapter 4 regarding solid waste, will be used during the on-site visit to evaluate qualifications of laboratory equipment, procedures, records, and personnel. The on-site visit requirement may be waived for out-of-state laboratories desiring certification where EPA or the resident state has a certification program equivalent to Iowa's, an on-site visit has been conducted within the past two years, and a copy of the on-site visit report is provided to the department.

83.4(2) *Letter of certification.* If the physical facilities and equipment of the laboratory meet the criteria set forth in the "Manual for the Certification of Laboratories Analyzing Environmental Samples for the Iowa Department of Natural Resources" (2003), and the laboratory personnel have properly demonstrated proficiency with the procedures specified in the manual, the laboratory will be issued a letter granting certification. The letter of certification will state the essential personnel, the specific parameters and analytical methods for which the laboratory is certified and may contain conditions deemed necessary by the department to ensure that the laboratory meets all requirements of this chapter.

567—83.5(455B) Procedures for certification of new laboratories or changes in certification. Laboratories that wish to become certified to conduct testing for an analyte or a method after the deadline for initial certification has passed, and any laboratory seeking initial certification, shall follow the procedures specified in 567—83.6(455B) for laboratory recertification. For changes in certification, the relevant fee must accompany the application where appropriate.

567—83.6(455B) Laboratory recertification. Laboratories shall be recertified every two years after initial certification. Applications for recertification must be on forms provided by the department and must be postmarked at least 60 days prior to the renewal date. Applications shall be accompanied by the fee specified in 83.3(2). To be recertified, laboratories must meet the following requirements.

83.6(1) Laboratories must use the approved methodology for all analyses the results of which are to be submitted to the department. A laboratory may not analyze and report data from samples collected for an environmental program area until certified in that area.

83.6(2) Certified laboratories must satisfactorily analyze PEs at least once every 12 months for each analyte by each method for which the laboratory wishes to retain certification unless a PE sample is not available for the particular analyte or method. Results must be submitted to Iowa department of natural

resources or as otherwise directed, along with a statement of the method used within 30 days of receipt from the provider. The laboratory must maintain records of all PE samples for a minimum of 5 years.

83.6(3) Laboratories must notify the department, in writing, within 15 days of major changes in essential personnel, equipment, laboratory location, or other major change which might alter or impair analytical capability. An example of a major change in essential personnel includes the loss or replacement of the laboratory supervisor, or a trained and experienced analyst is no longer available to analyze a particular parameter for which certification has been granted.

83.6(4) Site visits.

a. Certification of the State of Iowa Hygienic Laboratory. The department has designated the State of Iowa Hygienic Laboratory (SHL) as its appraisal authority for laboratory certification. The SHL is responsible for attaining and maintaining laboratory certification for the SDWA program that is acceptable to the U.S. Environmental Protection Agency (EPA). The SHL quality assurance officer is responsible for the certification of SHL for those programs with no available EPA certification program, including wastewater, underground storage tank, solid waste, and contaminated site programs. The SHL quality assurance officer reports directly to the office of the SHL director and operates independently of all areas of the laboratory generating data to ensure complete objectivity in the evaluation of laboratory operations. The quality assurance officer will schedule a biennial on-site inspection of the SHL and review results for acceptable performance. Inadequacies or unacceptable performance shall be reported by the quality assurance officer to the SHL and the department for correction. The department shall be notified if corrective action is not taken.

b. On-site visits. Laboratories must consent to a periodic site visit by the department or its designee, at least every two years. However, an on-site visit may be conducted more frequently if the laboratory undergoes a major change which may alter or impair analytical capability, fails a PE sample analysis, or if the department questions an aspect of data submitted which is not satisfactorily resolved.

83.6(5) Period of validity. Certification shall be valid for a period not to exceed two years from the date of issuance, except in the case of reciprocal certification of an out-of-state laboratory. Reciprocal certification shall be valid for a period equal to that of the resident state in which the laboratory is certified, but shall not exceed two years. Certification shall remain in effect provided a laboratory has submitted a timely and complete application, until certification is either renewed or revoked.

83.6(6) Reporting requirements. Laboratories may not analyze or report sample results for any analyte, analytical series, or environmental program area until the initial certification status of "certified" or "temporary" has been granted by the department. Any data generated before certification status is granted will be considered invalid for compliance purposes. A laboratory with "provisional" status may analyze and report analyses for compliance purposes.

A certified laboratory may contract analyses to another certified laboratory. The responsibility lies with the primary certified laboratory contracting for services to verify that the secondary contracting laboratory is certified by the department and to ensure that reporting requirements and deadlines are met.

a. Water supply program.

(1) Certified laboratories must report to the department, or its designee such as SHL, all analytical test results for all public water supplies, using forms provided or approved by the department or by electronic means acceptable to the department. If a public water supply is required by the department to collect and analyze a sample for an analyte not normally required by 567—Chapters 41 and 43, the laboratory testing for that analyte must also be certified and report the results of that analyte to the department. It is the responsibility of the laboratory to correctly assign and track the sample identification number as well as facility ID and source/entry point data for all reported samples.

1. The following are examples of sample types for which data results must be reported:

- Routine: a regular sample which includes samples collected for compliance purposes from such locations as the source/entry point and in the distribution system, at various sampling frequencies;
- Repeat: a sample which must be collected after a positive result from a routine or previous repeat total coliform sample, per 567—41.2(455B). Repeat samples must be analyzed at the same laboratory from which the associated original routine sample was analyzed;

- Confirmation: a sample which verifies a routine sample, normally used in determination of compliance with a health-based standard, such as nitrate;
- Special: a nonroutine sample, such as raw, plant, and troubleshooting samples, which cannot be used to comply with monitoring requirements assigned by the department;
- Maximum residence time: a sample which is collected at the maximum residence time location in the distribution system, usually for disinfection byproduct measurement; and
- Replacement: a sample which replaces a missed sample from a prior monitoring period resulting in a monitoring violation.

2. The following additional types of data must be reported to the department:

- Monthly Operation Report (MOR) data which has been specifically required by the department to demonstrate compliance with public health standards;
- Chemical results not required to be analyzed but which are detected during analysis, such as detection of a synthetic organic chemical during a routine analysis of that related analytical series for compliance reporting; and
- Raw water sampling results specifically covered by 567—Chapters 40 to 43 for new surface water or groundwater sources, or reconstruction of groundwater sources.

3. The following are examples of data results that are not required to be reported by the laboratory to the department:

- Routine MOR data;
- Distribution samples for the Total Coliform Rule for water main repair or installation; or
- Results for contaminants that are not required by the department to be analyzed, which are below detection level.

4. The sample type cannot be changed after submittal to the laboratory, without written approval by the department. The prescreening, splitting, or selective reporting of compliance samples is not allowed.

(2) Certified laboratories must report all analytical results to the public water supply for which the analyses were performed.

(3) Analytical results must be reported to and received by the department's designee by the seventh day of the month following the month in which the samples were analyzed.

(4) In addition to the monthly reporting of the analytical results, the following results must be reported within 24 hours of the completion of the analysis to the department by facsimile transmission (fax) or other method acceptable to the department, and to the public water supply for which the analyses were conducted:

1. Results of positive routine coliform bacteria samples, and all repeat and follow-up samples, reported within 24 hours of the completion of each sample's analysis.

2. Results of any contaminant which exceeds public drinking water standards (maximum contaminant level, treatment technique, or health advisory), and any subsequent confirmation samples, excluding lead and copper.

(5) If requested by the department, certified laboratories shall report their method detection levels, levels of quantitation, and any other pertinent information when reporting results for public water supplies.

b. Underground storage tank program. Certified laboratories must report to the client requesting the analysis and include the information required in 567—subrule 135.10(2) in their laboratory report.

c. Wastewater program. Certified laboratories must report to the client requesting the analysis and include the information required in 567—paragraphs 63.2(2)*"b"* to *"e"* in their laboratory report.

d. Solid waste and contaminated site programs. Certified laboratories must report to the client requesting the analysis and include the information required in paragraph 83.6(7)*"d"* and 567—subrule 103.2(8).

83.6(7) Performance evaluation (PE) and acceptance limits. All PE samples must be obtained from EPA; a provider accredited by EPA, the National Environmental Laboratory Accreditation Program (NELAP) or National Institute of Standards and Technology (NIST); or other provider acceptable to

the department. All PE samples must have statistical acceptance limits. Certain environmental program areas may have specific PE requirements, as follows:

a. Water supply program. Laboratories must be able to achieve at least the method detection limit for each specific analyte as listed in 567—Chapter 41, in addition to any method detection limit requirement listed in this paragraph.

(1) Volatile organic chemical (VOC). Analysis for VOCs shall only be conducted by laboratories certified by EPA or the department or its authorized designee according to the following conditions. To receive approval to conduct analyses for the VOC contaminants in 567—subparagraph 41.5(1)*"b"*(1), except for vinyl chloride, the laboratory must:

1. Analyze PE samples provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification.
2. Achieve the quantitative acceptance limits for at least 80 percent of the regulated organic chemicals included in the PE sample, except for vinyl chloride.
3. Achieve quantitative results on the PE samples within plus or minus 20 percent of the actual amount of the substances when the actual amount is greater than or equal to 0.010 mg/L.
4. Achieve quantitative results on the PE samples within plus or minus 40 percent of the actual amount of the substances when the actual amount is less than 0.010 mg/L.
5. Achieve a VOC method detection limit of 0.0005 mg/L.

(2) Vinyl chloride. To receive approval for vinyl chloride, the laboratory must:

1. Analyze PE samples which include vinyl chloride provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification.
2. Achieve quantitative results on the PE samples within plus or minus 40 percent of the actual amount of vinyl chloride.
3. Achieve a method detection limit of 0.0005 mg/L.

(3) Synthetic organic chemical (SOC). Analysis for SOCs shall be conducted only by laboratories certified by EPA or the department or its authorized designee. To receive approval to conduct analyses for the SOC contaminants in 567—subparagraph 41.5(1)*"b"*(2), the laboratory must:

1. Analyze PE samples which include those substances provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification.
2. For each contaminant that has been included in the PE sample, achieve quantitative results on the analyses that are within the following acceptance limits:

ACCEPTANCE LIMITS

Contaminant	Acceptance Limit, in percent
Alachlor	(+ or -) 45
Aldicarb	2 standard deviations
Aldicarb sulfoxide	2 standard deviations
Aldicarb sulfone	2 standard deviations
Atrazine	(+ or -) 45
Benzo(a)pyrene	2 standard deviations
Carbofuran	(+ or -) 45
Chlordane	(+ or -) 45
2,4-D	(+ or -) 50
Dalapon	2 standard deviations
Dibromochloropropane (DBCP)	(+ or -) 40
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations

Contaminant	Acceptance Limit, in percent
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	(+ or -) 30
Ethylene dibromide (EDB)	(+ or -) 40
Glyphosate	2 standard deviations
Heptachlor	(+ or -) 45
Heptachlor epoxide	(+ or -) 45
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	(+ or -) 45
Methoxychlor	(+ or -) 45
Oxamyl	2 standard deviations
Pentachlorophenol	(+ or -) 50
Picloram	2 standard deviations
Polychlorinated biphenyls (PCBs as decachlorobiphenyl)	0 - 200
Simazine	2 standard deviations
2,3,7,8-TCDD (Dioxin)	2 standard deviations
2,4,5-TP (Silvex)	2 standard deviations
Toxaphene	(+ or -) 45

(4) Inorganic chemical (IOC). Analysis for IOCs shall be conducted only by laboratories certified by EPA or the department or its authorized designee. To receive approval to conduct analyses for ammonia, antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nitrate, nitrite, selenium and thallium, the laboratory must:

1. Analyze PE samples provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year.

2. For each contaminant that has been included in the PE sample and for each method for which the laboratory desires certification, achieve quantitative results on the analyses that are within the following acceptance limits:

ACCEPTANCE LIMITS

Contaminant	Acceptance Limit
Ammonia	(+ or -) 20% at greater than or equal to 0.3 mg/L
Antimony	(+ or -) 30% at greater than or equal to 0.006 mg/L
Arsenic	(+ or -) 30% at greater than or equal to 0.003 mg/L
Asbestos	2 standard deviations based on study statistics
Barium	(+ or -) 15% at greater than or equal to 0.15 mg/L
Beryllium	(+ or -) 15% at greater than or equal to 0.001 mg/L
Cadmium	(+ or -) 20% at greater than or equal to 0.002 mg/L
Chromium	(+ or -) 15% at greater than or equal to 0.01 mg/L
Cyanide	(+ or -) 25% at greater than or equal to 0.1 mg/L

Contaminant	Acceptance Limit
Fluoride	(+ or -) 10% at greater than or equal to 1 to 10 mg/L
Mercury	(+ or -) 30% at greater than or equal to 0.0005 mg/L
Nitrate	(+ or -) 10% at greater than or equal to 0.4 mg/L
Nitrite	(+ or -) 15% at greater than or equal to 0.4 mg/L
Selenium	(+ or -) 20% at greater than or equal to 0.01 mg/L
Thallium	(+ or -) 30% at greater than or equal to 0.002 mg/L

(5) Lead and copper. To obtain certification to conduct analyses for lead and copper, laboratories must:

1. Analyze PE samples that include lead and copper provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification; and

2. Achieve quantitative results on the analyses that are within the following acceptance limits:

- Lead: plus or minus 30 percent of the actual amount in the PE sample when the actual amount is greater than or equal to 0.005 mg/L. The practical quantitation level or PQL for lead is 0.005 mg/L; and
- Copper: plus or minus 10 percent of the actual amount in the PE sample when the actual amount is greater than or equal to 0.050 mg/L. The practical quantitation level or PQL for copper is 0.050 mg/L; and

3. Be currently certified by EPA or the department to perform analyses to the specifications described in 567—paragraph 41.4(1)*"g."*

(6) Disinfection byproducts. To obtain certification to conduct analyses for disinfection byproducts listed in 567—paragraph 41.6(1)*"b,"* laboratories must:

1. Analyze PE samples approved by EPA, the department, or a third-party provider acceptable to the department at least once during each period of 12 consecutive months by each method for which the laboratory desires certification;

2. Achieve quantitative results on the PE sample analyses that are within the following acceptance limits:

Disinfection Byproduct	Acceptance limits (plus or minus this percent of true value)	Comments
TTHM		Laboratory must meet all four individual THM acceptance limits in order to successfully pass a PE sample for TTHM.
Bromoform	20	
Bromodichloromethane	20	
Chloroform	20	
Dibromomethane	20	
HAA5	40	Laboratory must meet the acceptance limits for 4 of the 5 HAA5 compounds in order to successfully pass a PE sample for HAA5.
Monobromoacetic Acid	40	
Dibromoacetic Acid	40	
Monochloroacetic Acid	40	
Dichloroacetic Acid	40	
Trichloroacetic Acid	40	
Chlorite	30	
Bromate	30	

3. Report quantitative data for concentrations at least as low as the levels listed in the following table for all disinfection byproduct samples analyzed for compliance with 567—41.6(455B).

Disinfection Byproduct	Minimum reporting level, mg/L[1]	Comments
TTHM[2]		
Bromoform	0.0010	
Bromodichloromethane	0.0010	
Chloroform	0.0010	
Dibromomethane	0.0010	
HAA5[2]		
Monobromoacetic Acid	0.0010	
Dibromoacetic Acid	0.0010	
Monochloroacetic Acid	0.0020	
Dichloroacetic Acid	0.0010	
Trichloroacetic Acid	0.0010	
Chlorite	0.020	Applicable to chlorite monitoring conducted by a certified laboratory required under 567—paragraphs 41.6(1)*"c"*(3)"2" and 41.6(1)*"c"*(3)"3"
Bromate	0.0050 or 0.0010	Laboratories that use EPA Method 317.0 Revision 2, 321.8, or 326.0 must meet a 0.0010 mg/L MRL for bromate.

[1]The calibration curve must encompass the regulatory minimum reporting level (MRL) concentration. Data may be reported for concentrations lower than the regulatory MRL as long as the precision and accuracy criteria are met by analyzing an MRL check standard at the lowest reporting limit chosen by the laboratory. The laboratory must verify the accuracy of the calibration curve at the MRL concentration by analyzing an MRL check standard with a concentration less than or equal to 100 percent of the MRL with each batch of samples. The measured concentration for the MRL check standard must be plus or minus 50 percent of the expected value, if any field sample in the batch has a concentration less than five times the regulatory MRL. Method requirements to analyze higher concentration check standards and meet tighter acceptance criteria for them must be met in addition to the MRL check standard requirement.

[2]When adding the individual trihalomethanes or haloacetic acid concentrations to calculate the TTHM or HAA5 concentrations, respectively, a zero is used for any analytical result that is less than the MRL concentration for that disinfection byproduct, unless otherwise specified by the department.

b. Underground storage tank program. A laboratory must achieve acceptable results on PE samples every 12 months within plus or minus 20 percent of the true value for individual compounds (i.e., benzene, ethylbenzene, toluene, xylene by OA-1) and plus or minus 40 percent of the true value for multicomponent materials (i.e., gasoline, diesel fuel, motor oil by either OA-1 or OA-2). The PE samples must be provided by EPA, the department, or a third-party provider acceptable to the department.

c. Wastewater program. Achieve acceptable quantitative results every 12 months on PE samples equivalent to those used in the Water Pollution (WP) proficiency program, or the Discharge Monitoring Report Quality Assurance (DMRQA) program, both of which are administered by EPA or its designee.

d. Solid waste and contaminated site programs. Achieve acceptable quantitative results every 12 months on PE samples provided by EPA, the department, or a third-party provider acceptable to the department.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—83.7(455B) Criteria and procedure for provisional, suspended, and revoked laboratory certification.

83.7(1) *Provisional certification criteria.*

a. The department may downgrade certification to "provisional" status based on cause. The reasons for which a laboratory may be downgraded to "provisionally certified" status include, but are not limited to, the following list.

(1) Failure to analyze a performance evaluation (PE) sample annually within Iowa acceptance limits;

(2) Failure to notify the department within 15 days of changes in essential personnel, equipment, laboratory facilities or other major change which might impair analytical capability;

(3) Failure to satisfy the department that the laboratory is maintaining the required standard of quality based on an on-site visit;

(4) Failure to report compliance data in a timely manner to the department or the client, thereby preventing timely compliance with environmental program regulations.

b. The department may assess an administrative penalty for a laboratory's failure to comply with the laboratory certification or reporting requirements.

c. A laboratory will not be granted provisional certification by the department for contaminants which pose an acute risk to human health, including nitrate, nitrite, fecal coliform bacteria, and *Escherichia coli* bacteria.

83.7(2) *Provisional certification procedure.*

a. Notification to the laboratory. If a laboratory is subject to downgrading to "provisional" status on the basis of 83.7(1), the department will notify the laboratory or owner in writing of the downgraded status. Certification may be downgraded to provisional for an analyte, a related analytical series, an environmental program area, or the entire laboratory.

b. Reporting. A provisionally certified laboratory may continue to analyze samples for compliance purposes, but must notify the laboratory's IDNR-regulated clientele and other state certifying agencies of the change in laboratory certification status. If there is cause to question the quality of the data generated by the laboratory, the department may suspend the laboratory's ability to submit data to the department for any or all analytes, pursuant to 83.7(3), which includes suspension of the ability of the laboratory's client to report the data of questionable quality to the department.

c. Right to appeal. There is no appeal for this process, as it does not affect a laboratory's ability to analyze and report to the department.

d. Correction of deficiencies.

(1) If a laboratory failed to analyze a PE sample within acceptance limits, the laboratory has 60 days from receipt of the notification of the failure to identify and correct the problem to the department's satisfaction, and analyze a second PE sample. If the laboratory fails to analyze this second sample within acceptance limits and has had acceptable PE sample results within the last year, the department will downgrade the laboratory to "provisionally certified" status and notify the laboratory in writing.

(2) Once the department notifies a laboratory in writing that it has been downgraded to "provisionally certified" status, the laboratory must correct the problem within the following time frames, unless a written extension is obtained from the department. If the problem is not corrected, the laboratory is subject to suspension or revocation for that analyte, related analytical series, environmental program area, or the entire laboratory.

1. Unacceptable PE sample result within two months of notification.
2. Procedural deficiency within three months of notification.
3. Administrative deficiency within three months of notification.
4. Minor equipment deficiency within three months of notification. Examples of a minor equipment deficiency are inadequate analytical balances or incubators.

(3) The laboratory shall review the problems cited and, within the time period designated by the department, specify in writing to the department the corrective actions being taken, including an appropriate implementation schedule. The department shall consider the adequacy of the response and

notify the laboratory of its certification status in a timely basis by mail, and may follow up to ensure corrective actions have been taken.

e. Reinstatement. Certification will be reinstated when the laboratory can demonstrate that all conditions for laboratory certification have been met to the satisfaction of the department and that the deficiencies which resulted in provisional certification status have been corrected. This may include an on-site visit, successful analysis of PE samples, or any other measure that the department deems appropriate.

83.7(3) *Suspended certification criteria.*

a. The department may downgrade certification to "suspended" status based on cause. The reasons for which a laboratory may be downgraded to "suspended" status include, but are not limited to, the following list.

(1) Failure to analyze a PE sample annually for contaminants which pose an acute risk to human health, including nitrate, nitrite, fecal coliform bacteria, and *Escherichia coli* bacteria, or which pose an imminent risk to the environment;

(2) Failure to analyze a PE sample annually within Iowa acceptance limits for contaminants which pose an acute risk to human health, including nitrate, nitrite, fecal coliform bacteria, and *Escherichia coli* bacteria, or which pose an imminent risk to the environment;

(3) Failure to correct previously identified deficiencies, which resulted in "provisional" certification status, within the prescribed time frames of 83.7(2)*"d"*;

(4) Failure to analyze a PE sample within Iowa acceptance limits when there is not a reliable history of successful PE sample analysis within the past 12 months;

(5) Failure to satisfy the department that the laboratory is producing accurate data.

b. Administrative penalty. The department may assess an administrative penalty for a laboratory's failure to comply with the laboratory certification or reporting requirements.

c. Emergency certification suspension. The department may suspend certification without providing notice and opportunity to the laboratory to be heard if the department finds that the public health, safety, or welfare imperatively requires emergency action, and incorporates a finding to that effect in its administrative order, pursuant to 561—subrule 7.16(6).

83.7(4) *Suspended certification procedure.*

a. Notification to the laboratory. If a laboratory is subject to downgrading to "suspended" status on the basis of 83.7(3), the department will notify the laboratory or owner in writing of its intent to suspend certification in accordance with 561—7.16(17A,455A). Certification may be suspended for an analyte, a related analytical series, an environmental program area, or the entire laboratory.

b. Reporting. Once the suspension is effective, a laboratory must immediately discontinue analysis and reporting of compliance samples, may not analyze or report samples for compliance with departmental standards, and must notify the laboratory's Iowa regulated clientele and other state certifying agencies of the change of the laboratory certification status. Any results generated during the period of suspension may not be used for compliance purposes by the department.

c. Right to appeal.

(1) The laboratory may appeal this decision by filing a written notice of appeal and request an administrative hearing with the department director within 30 days of receipt of the notice of suspension of certification. Contested case procedures under 561—Chapter 7 shall govern administration of the appeal.

The appeal must identify the specific portion(s) of the department action being appealed and be supported with a statement of the reason(s) for the challenge and must be signed by a responsible official from the laboratory such as the president or owner for a commercial laboratory, or the laboratory supervisor in the case of a municipal laboratory, or the laboratory director for a state laboratory.

(2) If no timely notice of appeal is filed, suspension is effective 30 days after receipt of the notice of suspension unless an emergency suspension order is in effect.

d. Correction of deficiencies.

(1) If a laboratory failed to analyze a PE sample within acceptance limits, the laboratory has 30 days from receipt of the notification of the failure to identify and correct the problem to the department's

satisfaction. If the laboratory fails to analyze this second sample within acceptance limits, the department will downgrade the laboratory to "suspended" status and notify the laboratory in writing.

(2) Once the department notifies a laboratory in writing that it has been downgraded to suspended status, the laboratory must correct the problem within the following timetable, unless a written extension is obtained from the department. If the problem is not corrected, the laboratory is subject to revocation for that analyte, related analytical series, environmental program area, or the entire laboratory.

1. Unacceptable PE sample result within two months of notification.
2. Procedural deficiency within three months of notification.
3. Administrative deficiency within three months of notification.
4. Minor equipment deficiency within three months of notification. Examples of a minor equipment deficiency are inadequate analytical balances or incubators.
5. Major equipment deficiency within six months of notification. An example of a major equipment deficiency would be the inability of existing complex analytical equipment to produce acceptable results, such as a chromatograph or spectrophotometer.

(3) The laboratory shall review the problems cited and, within the time period designated by the department, specify in writing to the department the corrective actions being taken including an appropriate implementation schedule. The department shall consider the adequacy of the response and notify the laboratory of its certification status in a timely basis by mail, and may follow up to ensure that corrective actions have been taken.

e. Reinstatement.

(1) Fee.

1. The laboratory will not be required to pay an additional fee if recertification affects an analyte or related analytical series, provided that:

- The laboratory is currently certified for other analytes, or
- A fee was paid within the two-year certification period for that related analytical series and the laboratory is certified for other parameters within that related analytical series.

2. A fee will be required if suspension affects a related analytical series effectively deleting that fee group from certification (such as all microbiological parameters in SDWA-MICRO), an environmental program area, or the entire laboratory. A fee will also be required if an additional on-site visit is required.

(2) Certification will be reinstated when the laboratory can demonstrate that all conditions for laboratory certification have been met to the department's satisfaction and, in particular, that the deficiencies which produced the suspension have been corrected. This may include an on-site visit, successful analysis of unknown samples, or any other measure that the department deems appropriate.

83.7(5) *Revoked certification criteria.*

a. The department may revoke certification for cause. The reasons for which a laboratory's certification may be revoked include, but are not limited to, the following:

(1) For laboratories of any status, failure to analyze a PE sample within Iowa acceptance limits;

(2) Failure to satisfy the department that the laboratory has corrected deficiencies identified during the on-site visit within three months for a procedural or administrative deficiency or within six months for an equipment deficiency;

(3) Submission of a PE sample to another laboratory for analysis and reporting the data as its own;

(4) Falsification of data or other deceptive practices;

(5) Failure to use required analytical methodology for analyses submitted to the department;

(6) Failure to satisfy the department that the laboratory is maintaining the required standard of quality based on the on-site visit;

(7) Persistent failure to report compliance data to the regulated client or the department in a timely manner, thereby preventing compliance with state regulations and endangering public health;

(8) Subverting compliance with state regulations by actions such as changing the sample type for a noncompliance sample to a compliance sample after its submission to the laboratory, allowing compliance samples to be changed to other noncompliance sample types, or selective reporting of split sample results; or

(9) For laboratories certified through a reciprocal agreement with another state or third-party accreditation program, loss of certification in either the resident state or third-party accreditation program is cause for immediate revocation of certification in Iowa for the same parameters or program areas for which certification was lost.

b. The department may either downgrade or revoke certification based on cause.

c. Emergency revocation. The department may revoke certification without providing notice and opportunity to the laboratory to be heard if the department finds that the public health, safety, or welfare imperatively requires emergency action, and incorporates a finding to that effect in its administrative order, pursuant to 561—subrule 7.16(6).

d. Laboratory-requested revocation. The department may revoke certification upon receipt of a written request by the certified laboratory for removal from the certification program.

83.7(6) *Revoked certification procedure.*

a. Notification to the laboratory. Except for the instance when the laboratory voluntarily requests revocation in 83.7(5)*"d,"* if a laboratory is subject to revocation on the basis of 83.7(5), the department will notify the party in writing of its intent to revoke certification in accordance with 561—7.16(17A,455A). Certification may be revoked for an analyte, a related analytical series, an environmental program area, or the entire laboratory.

b. Reporting. Once revocation is effective, a laboratory must immediately discontinue analysis and reporting of compliance samples, shall not analyze or report samples for compliance with departmental standards, and must notify the laboratory's Iowa-regulated clientele and other state certifying agencies of the change of the laboratory certification status within three business days of receipt of the final notice. Any results generated after revocation may not be used for compliance purposes by the department.

c. Right to appeal. There is no appeal process for revocation of an analyte or a related analytical series unless the analyte(s) represents an entire environmental program area, such as underground storage tank parameters, or the entire laboratory. When the laboratory requests revocation pursuant to 83.7(5)*"d,"* the revocation will be issued promptly and will be effective immediately with no appeal process.

(1) For an environmental program area or for the entire laboratory, the laboratory may appeal this decision by filing a written notice of appeal and request for an administrative hearing with the department director within 30 days of receipt of the notice of revocation of certification. Contested case procedures under 561—Chapter 7 shall govern further administration of the appeal.

The appeal must identify the specific portion(s) of the department action being appealed and be supported with a statement of the reason(s) for the challenge and must be signed by a responsible official from the laboratory such as the president or owner for a commercial laboratory, or the laboratory supervisor in the case of a municipal laboratory, or the laboratory director for a state laboratory.

(2) If no timely notice of appeal is filed within the 30-day time period, revocation is effective 30 days after receipt of the notice of intent.

d. Reinstatement. A laboratory which has had its certification revoked may apply for certification in accordance with 567—83.3(455B) once the deficiencies have been corrected.

These rules are intended to implement Iowa Code sections 455B.113 through 455B.115.

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[2] Effective date of Ch 83 delayed 70 days by the Administrative Rules Review Committee at its meeting held May 14, 1996.

PHARMACY BOARD[657]

[Prior to 2/10/88, see Pharmacy Examiners, Board of [620], renamed Pharmacy Examiners Board[657] under the "umbrella" of Public Health Department by 1986 Iowa Acts, ch 1245; renamed by 2007 Iowa Acts, Senate File 74]

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GENERAL PHARMACY PRACTICE
[Prior to 2/10/88, see Pharmacy Examiners[620] Ch 2]

657—6.1(155A) Purpose and scope. A general pharmacy is a location where a pharmacist provides pharmaceutical services or dispenses pharmaceutical products to patients in accordance with pharmacy laws. This chapter does not apply to a hospital pharmacy as defined in 657—Chapter 7. The requirements of these rules for general pharmacy practice are in addition to the requirements of 657—Chapter 8 and other rules of the board relating to services provided by the pharmacy.

657—6.2(155A) Pharmacist in charge. One professionally competent, legally qualified pharmacist in charge in each pharmacy shall be responsible for, at a minimum, the following:

1. Ensuring that the pharmacy utilizes an ongoing, systematic program for achieving performance improvement and ensuring the quality of pharmaceutical services.
2. Ensuring that the pharmacy employs an adequate number of qualified personnel commensurate with the size and scope of services provided by the pharmacy.
3. Ensuring the availability of any equipment and references necessary for the particular practice of pharmacy.
4. Ensuring that a pharmacist performs prospective drug use review as specified in rule 657—8.21(155A).
5. Ensuring that a pharmacist provides patient counseling as specified in rule 657—6.14(155A).
6. Dispensing drugs to patients, including the packaging, preparation, compounding, and labeling functions performed by pharmacy personnel.
7. Delivering drugs to the patient or the patient's agent.
8. Ensuring that patient medication records are maintained as specified in rule 657—6.13(155A).
9. Training pharmacy technicians and pharmacy support persons.
10. Procuring and storing prescription drugs and devices and other products dispensed from the pharmacy.
11. Distributing and disposing of drugs from the pharmacy.
12. Maintaining records of all transactions of the pharmacy necessary to maintain accurate control over and accountability for all drugs as required by applicable state and federal laws, rules, and regulations.
13. Establishing and maintaining effective controls against the theft or diversion of prescription drugs and records for such drugs.
14. Establishing and implementing policies and procedures for all operations of the pharmacy.
15. Ensuring the legal operation of the pharmacy, including meeting all inspection and other requirements of state and federal laws, rules, and regulations governing the practice of pharmacy.
16. Ensuring that there is adequate space within the prescription department or a locked room not accessible to the public for the storage of prescription drugs, devices, and controlled substances and to support the operations of the pharmacy.

[**ARC 8673B**, IAB 4/7/10, effective 6/1/10]

657—6.3(155A) Reference library. References may be printed or computer-accessed. A reference library shall be maintained which includes, as a minimum, one current reference from each of the following categories, including access to current periodic updates.

1. The Iowa Pharmacy Law and Information Manual.
2. A patient information reference that includes or provides patient information in compliance with rule 657—6.14(155A).
3. A reference on drug interactions.
4. A general information reference.
5. A drug equivalency reference.
6. A reference on natural or herbal medicines.
7. The readily accessible telephone number of a poison control center that serves the area.

8. Additional references as may be necessary for the pharmacist to adequately meet the needs of the patients served.

657—6.4(155A) Exemption from duplicate requirements. A pharmacy established in the same location as another licensed pharmacy and with direct and immediate access to required references, patient counseling area, refrigerator, or sink with hot and cold running water may utilize the references, counseling area, refrigerator, or sink of the other pharmacy to satisfy the requirements of rule 657—6.3(155A), subrule 6.14(3), or rule 657—8.5(155A), paragraphs "1" and "2."

657—6.5 and **6.6** Reserved.

657—6.7(124,155A) Security. While on duty, each pharmacist shall be responsible for the security of the prescription department, including provisions for effective control against theft of, diversion of, or unauthorized access to prescription drugs, records for such drugs, and patient records as provided in 657—Chapter 21.

6.7(1) *Department locked.* The prescription department shall be locked by key or combination so as to prevent access when a pharmacist is not on site except as provided in subrule 6.7(2).

6.7(2) *Temporary absence of pharmacist.* In the temporary absence of the pharmacist, only the pharmacist in charge may designate pharmacy technicians or pharmacy support persons who may be present in the prescription department to perform technical or nontechnical functions, respectively, designated by the pharmacist in charge. Activities identified in subrule 6.7(3) may not be performed during such temporary absence of the pharmacist. A temporary absence is an absence of short duration not to exceed two hours. In the absence of the pharmacist, the pharmacy shall notify the public that the pharmacist is temporarily absent and that no prescriptions will be dispensed until the pharmacist returns.

6.7(3) *Activities prohibited in absence of pharmacist.* Activities which shall not be designated and shall not be performed during the temporary absence of the pharmacist include:

a. Dispensing or distributing any prescription drugs or devices to patients or others.

b. Providing the final verification for the accuracy, validity, completeness, or appropriateness of a filled prescription or medication order.

c. Conducting prospective drug use review or evaluating a patient's medication record for purposes identified in rule 657—8.21(155A).

d. Providing patient counseling, consultation, or drug information.

e. Making decisions that require a pharmacist's professional judgment such as interpreting or applying information.

f. Transferring prescriptions to or from other pharmacies.

[**ARC 8673B**, IAB 4/7/10, effective 6/1/10]

657—6.8(124,155A) Prescription processing documentation. All prescriptions shall be dated and assigned a unique identification number that shall be recorded on the original prescription. The original prescription, whether transmitted orally, electronically, or in writing, shall be retained by the pharmacy filling the prescription. Refill documentation shall include date of refill and the initials or other unique identification of the pharmacist. The name, strength, and either the manufacturer's name or the National Drug Code (NDC) of the actual drug product dispensed shall be maintained and be readily retrievable.

657—6.9(124,155A) Transfer of prescription. The transmission of a prescription drug order from a pharmacy to a pharmacy engaged in centralized prescription filling or processing on behalf of the originating pharmacy pursuant to the requirements of 657—Chapter 18 shall not constitute the transfer of a prescription. Upon the request of a patient or the patient's caregiver, a pharmacy shall transfer original prescription drug order information and prescription refill information to a pharmacy designated by the patient or the patient's caregiver, central fill or processing pharmacies excepted, subject to the following requirements:

6.9(1) *Schedule III, IV, or V prescriptions.* The transfer of original prescription drug order information for controlled substances listed in Schedule III, IV, or V is permissible between pharmacies on a one-time basis except as provided in subrule 6.9(9).

6.9(2) *Noncontrolled substances prescriptions.* The transfer of original prescription drug order information for noncontrolled prescription drugs between pharmacies is permissible as long as the number of transfers does not exceed the number of originally authorized refills and the original prescription is still valid.

6.9(3) *Communication.* The transfer is communicated directly between pharmacists, directly between pharmacist-interns under the direct supervision of pharmacists at the respective pharmacies, directly between a pharmacist and a pharmacist-intern under the direct supervision of a pharmacist, or as authorized in subrule 6.9(9).

6.9(4) *Prescriptions maintained.* Both the original and the transferred prescription drug orders are maintained for a period of two years from the date of last refill.

6.9(5) *Record of transfer out.* The pharmacist or pharmacist-intern transferring the prescription drug order information shall:

a. Invalidate the prescription drug order;

b. Record on or with the invalidated prescription drug order the following information:

(1) The name, address, and, for a controlled substance, the DEA registration number of the pharmacy to which such prescription is transferred;

(2) The name of the pharmacist or pharmacist-intern receiving the prescription drug order information;

(3) The name of the pharmacist or pharmacist-intern transferring the prescription drug order information; and

(4) The date of the transfer.

6.9(6) *Original prescription status.* The original prescription drug order shall be invalidated in the data processing system for purposes of filling or refilling, but shall be maintained in the data processing system for refill history purposes.

6.9(7) *Controlled substance prescription status.* The data processing system shall have a mechanism to prohibit the transfer or refilling of controlled substance prescription drug orders that have been previously transferred.

6.9(8) *Record of transfer received.* The pharmacist or pharmacist-intern receiving the transferred prescription drug order information shall:

a. Indicate that the prescription drug order has been transferred;

b. Record on or with the transferred prescription drug order the following information:

(1) Original date of issuance and date of dispensing, if different from date of issuance;

(2) Original prescription number;

(3) Number of valid refills remaining, the date of last refill, and, for a controlled substance, the dates and locations of all previous refills;

(4) Name, address, and, for a controlled substance, the DEA registration number of the pharmacy from which such prescription drug order information is transferred;

(5) The date of the transfer;

(6) Name of the pharmacist or pharmacist-intern receiving the prescription drug order information;

(7) Name of the pharmacist or pharmacist-intern transferring the prescription drug order information; and

(8) If transferring a controlled substance prescription from a pharmacy utilizing a shared electronic database system as described in subrule 6.9(9) to a pharmacy outside that shared system, the pharmacy name, location, DEA registration number, and prescription number from which the prescription was originally filled.

6.9(9) *Electronic transfer between pharmacies.* Pharmacies electronically accessing the same prescription drug order records via a real-time, on-line database may electronically transfer prescription information, including controlled substance prescription information, up to the maximum refills permitted by law and the prescriber's authorization, if the following requirements are met.

a. The data processing system shall have a mechanism to send the transferring pharmacy a message containing the following information:

(1) The fact that the prescription drug order was transferred;

(2) The unique identification number of the prescription drug order transferred;

(3) The name, address, and DEA registration number of the pharmacy to which the prescription drug order was transferred and the name of the pharmacist or pharmacist-intern receiving the prescription information; and

(4) The date and time of transfer.

b. A pharmacist or pharmacist-intern under the direct supervision of a pharmacist in the transferring pharmacy shall review the message and document the review by signing and dating a hard copy of the message or logbook containing the information required on the message, or by a notation in the electronic message that includes the unique identification of the pharmacist or pharmacist-intern and the date of review, as soon as practical, but in no event more than 72 hours from the time of such transfer.

c. For transfers of controlled substance prescriptions, all information requirements included in subrules 6.9(1) and 6.9(3) through 6.9(8) shall be satisfied in the electronic system. Transfers of controlled substance prescriptions shall also identify the pharmacy name, address, DEA registration number, and prescription number from which the prescription was originally filled.

[**ARC 7634B**, IAB 3/11/09, effective 4/15/09; **ARC 8169B**, IAB 9/23/09, effective 10/28/09]

657—6.10(126,155A) Prescription label requirements.

6.10(1) *Required information.* The label affixed to or on the dispensing container of any prescription drug or device dispensed by a pharmacy pursuant to a prescription drug order shall bear the following:

a. Serial number (a unique identification number of the prescription);

b. The name, telephone number, and address of the pharmacy;

c. The name of the patient or, if such drug is prescribed for an animal, the species of the animal and the name of its owner;

d. The name of the prescribing practitioner;

e. The date the prescription is dispensed;

f. The directions or instructions for use, including precautions to be observed;

g. Unless otherwise directed by the prescriber, the label shall bear the name, strength, and quantity of the drug dispensed.

(1) If a pharmacist selects an equivalent drug product for a brand name drug product prescribed by a practitioner, the prescription container label shall identify the generic drug and may identify the brand name drug for which the selection is made, such as "(generic name) Generic for (brand name product)."

(2) If a pharmacist selects a brand name drug product for a generic drug product prescribed by a practitioner, the prescription container label shall identify the brand name drug product dispensed and may identify the generic drug product ordered by the prescriber, such as "(brand name product) for (generic name)";

h. The initials or other unique identification of the dispensing pharmacist.

6.10(2) *Exceptions.* The requirements of subrule 6.10(1) do not apply to unit dose dispensing systems, 657—22.1(155A); sterile products, 657—Chapter 13; and patient med paks, 657—22.5(126,155A).

657—6.11 and **6.12** Reserved.

657—6.13(155A) Patient record system.

6.13(1) *Information required.* A patient record system shall be maintained by all pharmacies for patients for whom prescription drug orders are dispensed. The patient record system shall provide for the immediate retrieval of information necessary for the dispensing pharmacist to identify previously dispensed drugs at the time a prescription drug order is presented for dispensing. The pharmacist shall be responsible for obtaining, recording, and maintaining the following information:

a. Full name of the patient for whom the drug is intended;
b. Address and telephone number of the patient;
c. Patient's age or date of birth;
d. Patient's gender;
e. Known allergies;
f. Significant patient information including a list of all prescription drug orders dispensed by the pharmacy during the two years immediately preceding the most recent entry showing the name of the drug or device, prescription number, name and strength of the drug, the quantity and date received, and the name of the prescriber; and
g. Pharmacist comments relevant to the individual's drug therapy, including:
(1) Known drug reactions,
(2) Identified idiosyncrasies,
(3) Known chronic conditions or disease states of the patient,
(4) The identity of any other drugs, over-the-counter drugs, herbals, other alternative medications, or devices currently being used by the patient that may relate to prospective drug review.

6.13(2) *Record retained.* A patient record shall be maintained for a period of not less than two years from the date of the last entry in the patient record. This record may be a hard copy or a computerized form.

6.13(3) *Confidential.* Information in the patient record shall be deemed to be confidential and may be released only as provided in rule 657—8.16(124,155A).

657—6.14(155A) Patient counseling and instruction. Every general pharmacy located in Iowa shall post in every prescription pickup area, including in every drive-through prescription pickup lane, in a manner clearly visible to patients, a notice that Iowa law requires the pharmacist to discuss with the patient any new prescriptions dispensed to the patient. The board shall provide a general pharmacy with the required signage. A pharmacy that provides no direct patient access to the pharmacy department, commonly referred to as a "closed-door pharmacy," shall not be required to post the counseling notice.

6.14(1) *Counseling required.* Upon receipt of a new prescription drug order, or upon receipt of a change in drug therapy including but not limited to a change of dose, directions, or drug formulation, and following a prospective drug use review pursuant to 657—8.21(155A), a pharmacist shall counsel each patient or patient's caregiver. An offer to counsel shall not fulfill the requirements of this rule. Patient counseling shall be on matters which, in the pharmacist's professional judgment, will enhance or optimize drug therapy. Appropriate elements of patient counseling may include:
a. The name and description of the drug;
b. The dosage form, dose, route of administration, and duration of drug therapy;
c. Intended use of the drug, if known, and expected action;
d. Special directions and precautions for preparation, administration, and use by the patient;
e. Common severe side effects or adverse effects or interactions and therapeutic contraindications that may be encountered, including their avoidance, and the action required if they occur;
f. Techniques for self-monitoring drug therapy;
g. Proper storage;
h. Prescription refill information;
i. Action to be taken in the event of a missed dose;
j. Pharmacist comments relevant to the individual's drug therapy including any other information peculiar to the specific patient or drug.

6.14(2) *Instruction.* A pharmacist may instruct patients and demonstrate procedures for self-monitoring of medical conditions and for self-administration of drugs.

6.14(3) *Counseling area.* A pharmacy shall contain an area which is suitable for confidential patient counseling. Such area shall:
a. Be easily accessible to both patient and pharmacists and not allow patient access to prescription drugs;

b. Be designed to maintain the confidentiality and privacy of the pharmacist/patient communication.

6.14(4) *Oral counseling not practicable.* If in the pharmacist's professional judgment oral counseling is not practicable, the pharmacist may use alternative forms of patient information. "Not practicable" refers to patient variables including, but not limited to, the absence of the patient or patient's caregiver, the patient's or caregiver's hearing impairment, or a language barrier. "Not practicable" does not include pharmacy variables such as inadequate staffing, technology failure, or high prescription volume. Alternative forms of patient information may include written information leaflets, pictogram labels, video programs, or information generated by electronic data processing equipment. When used in place of oral counseling, alternative forms of patient information shall advise the patient or caregiver that the pharmacist may be contacted for consultation in person at the pharmacy by toll-free telephone or collect telephone call. A combination of oral counseling and alternative forms of counseling is encouraged.

6.14(5) *Exception.* Patient counseling, as described above, shall not be required for inpatients of an institution where other licensed health care professionals are authorized to administer the drugs.

6.14(6) *Refusal of consultation.* A pharmacist shall not be required to counsel a patient or caregiver when the patient or caregiver refuses such consultation. A patient's or caregiver's refusal of consultation shall be documented by the pharmacist. The absence of any record of a refusal of the pharmacist's attempt to counsel shall be presumed to signify that the offer was accepted and that counseling was provided.

[**ARC 8540B**, IAB 2/24/10, effective 4/1/10; **ARC 9910B**, IAB 12/14/11, effective 1/18/12]

657—6.15(124,126) Return of drugs and other items. For the protection of the public health and safety, prescription drugs and devices, controlled substances, and items of personal contact nature may be returned to the pharmacy for reuse or resale only as herein provided:

6.15(1) *Integrity maintained.* Prescription drugs and devices may be returned, exchanged, or resold only if, in the professional judgment of the pharmacist, the integrity of the prescription drug has not in any way been compromised.

6.15(2) *Controlled substances.* Under no circumstances shall pharmacy personnel accept from a patient or a patient's agent any controlled substances for return, exchange, or resale except to the same patient.

6.15(3) *Unit dose returns.* Prescription drugs dispensed in unit dose packaging, excluding controlled substances, may be returned and reused as authorized in 657—subrule 22.1(6).

6.15(4) *Personal contact items.* Pharmacy personnel shall not accept for reuse or resale any items of personal contact nature that have been removed from the original package or container after sale.

657—6.16(124,155A) Records. Every inventory or other record required to be kept under Iowa Code chapters 124 and 155A or rules of the board shall be kept by the pharmacy and be available for inspection and copying by the board or its representative for at least two years from the date of the inventory or record except as specifically identified by law or rule. Controlled substances records shall be maintained in a readily retrievable manner in accordance with federal requirements and 657—Chapter 10. Original hard-copy prescription and other pharmacy records more than 12 months old may be maintained in a secure storage area outside the licensed pharmacy department unless such remote storage is prohibited under federal law. A remote storage area shall be located within the same physical structure containing the licensed pharmacy department.

6.16(1) *Combined records.* If controlled substances, prescription drugs, or nonprescription drug items are listed on the same record, the controlled substances shall be asterisked, red-lined, or in some other manner made readily identifiable from all other items appearing on the records.

6.16(2) *Prescriptions maintained.* The original prescription drug order shall be maintained for a period of two years following the date of last activity on the prescription.

6.16(3) *Number imprinted.* The original hard-copy prescription shall be imprinted with the prescription or control number assigned to the prescription drug order.

6.16(4) *Alternative data retention system.* Records, except when specifically required to be maintained in original or hard-copy form, may be maintained in an alternative data retention system, such as a data processing system or direct imaging system provided:

a. The records maintained in the alternative system contain all of the information required on the manual record;

b. The data processing system is capable of producing a hard copy of the record, within two business days, upon the request of the board, its representative, or other authorized local, state, or federal law enforcement or regulatory agencies; and

c. The information maintained in the alternative system is not obscured or rendered illegible due to security features of the original hard-copy record.

[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 8539B**, IAB 2/24/10, effective 4/1/10]

These rules are intended to implement Iowa Code sections 124.301, 124.303, 124.306, 126.10, 126.11, 155A.6, 155A.13, 155A.27, 155A.28, 155A.31, and 155A.33 through 155A.36.

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◊ Two or more ARCs

CHAPTER 7
HOSPITAL PHARMACY PRACTICE
[Prior to 2/10/88, see Pharmacy Examiners[620] Ch 12]

657—7.1(155A) Purpose and scope. Hospital pharmacy means and includes a pharmacy licensed by the board and located within any hospital, health system, institution, or establishment which maintains and operates organized facilities for the diagnosis, care, and treatment of illnesses to which patients may or may not be admitted for overnight stay at the facility. A hospital is a facility licensed pursuant to Iowa Code chapter 135B. This chapter does not apply to a pharmacy located within such a facility for the purpose of providing outpatient prescriptions. A pharmacy providing outpatient prescriptions is and shall be licensed as a general pharmacy subject to the requirements of 657—Chapter 6. The requirements of these rules for hospital pharmacy practice apply to all hospitals, regardless of size or type, and are in addition to the requirements of 657—Chapter 8 and other rules of the board relating to services provided by the pharmacy.
[**ARC 9911B**, IAB 12/14/11, effective 1/18/12]

657—7.2(155A) Pharmacist in charge. One professionally competent, legally qualified pharmacist in charge in each pharmacy shall be responsible for, at a minimum, the items identified in this rule. A part-time pharmacist in charge has the same obligations and responsibilities as a full-time pharmacist in charge. Where 24-hour operation of the pharmacy is not feasible, a pharmacist shall be available on an "on call" basis. The pharmacist in charge, at a minimum, shall be responsible for:

1. Ensuring that the pharmacy utilizes an ongoing, systematic program for achieving performance improvement and ensuring the quality of pharmaceutical services.
2. Ensuring that the pharmacy employs an adequate number of qualified personnel commensurate with the size and scope of services provided by the pharmacy and sufficient to ensure adequate levels of quality patient care services. Drug dispensing by nonpharmacists shall be minimized and eliminated wherever possible.
3. Ensuring the availability of any equipment and references necessary for the particular practice of pharmacy.
4. Ensuring that a pharmacist performs therapeutic drug monitoring and drug use evaluation.
5. Ensuring that a pharmacist provides drug information to other health professionals and to patients.
6. Dispensing drugs to patients, including the packaging, preparation, compounding, and labeling functions performed by pharmacy personnel.
7. Delivering drugs to the patient or the patient's agent.
8. Ensuring that patient medication records are maintained as specified in rule 657—7.10(124,155A).
9. Training pharmacy technicians and pharmacy support persons.
10. Ensuring adequate and appropriate pharmacist oversight and supervision of pharmacy technicians and pharmacy support persons.
11. Procuring and storing prescription drugs and devices and other products dispensed from the pharmacy.
12. Distributing and disposing of drugs from the pharmacy.
13. Maintaining records of all transactions of the pharmacy necessary to maintain accurate control over and accountability for all drugs as required by applicable state and federal laws, rules, and regulations.
14. Establishing and maintaining effective controls against the theft or diversion of prescription drugs, controlled substances, and records for such drugs.
15. Preparing a written operations manual governing pharmacy functions; periodically reviewing and revising those policies and procedures to reflect changes in processes, organization, and other pharmacy functions; and ensuring that all pharmacy personnel are familiar with the contents of the manual.

16. Ensuring the legal operation of the pharmacy, including meeting all inspection and other requirements of state and federal laws, rules, and regulations governing the practice of pharmacy.
[**ARC 8673B**, IAB 4/7/10, effective 6/1/10]

657—7.3(155A) Reference library. References may be printed or computer-accessed. A reference library shall be maintained which includes, as a minimum, one current reference from each of the following categories, including access to current periodic updates.

1. The Iowa Pharmacy Law and Information Manual.
2. A patient information reference that includes or provides patient information in compliance with rule 657—6.14(155A).
3. A reference on drug interactions.
4. A general information reference.
5. A drug equivalency reference.
6. An injectable-drug compatibility reference.
7. A drug identification reference to enable identification of drugs brought into the facility by patients.
8. The readily accessible telephone number of a poison control center that serves the area.
9. Additional references as may be necessary for the pharmacist to adequately meet the needs of the patients served. For example, the treatment of pediatric patients and oncology patients would require additional references unique to those specialties.

657—7.4 and **7.5** Reserved.

657—7.6(124,155A) Security. The pharmacy shall be located in an area or areas that facilitate the provision of services to patients and shall be integrated with the facility's communication and transportation systems. The following conditions must be met to ensure appropriate control over drugs and chemicals in the pharmacy:

7.6(1) *Pharmacist responsibility.* Each pharmacist, while on duty, shall be responsible for the security of the pharmacy area, including provisions for effective control against theft of, diversion of, or unauthorized access to drugs or devices, controlled substances, records for such drugs, and patient records as provided in 657—Chapter 21. Policies and procedures shall identify the minimum amount of time that a pharmacist is available at the hospital pharmacy.

7.6(2) *Access when pharmacist absent.* When the pharmacist is absent from the facility, the pharmacy is closed. Policies and procedures shall be established that identify who will have access to the pharmacy when the pharmacy is closed and the procedures to be followed for obtaining drugs, devices, and chemicals to fill an emergent need during the pharmacist's absence.

a. The pharmacist in charge may designate pharmacy technicians or pharmacy support persons who may be present in the pharmacy to perform technical or nontechnical functions, respectively, designated by the pharmacist in charge. Activities identified in paragraph *"d"* of this subrule may not be performed when the pharmacy is closed.

b. If the pharmacist in charge has authorized the presence in the pharmacy of a pharmacy technician or a pharmacy support person to perform designated functions when the pharmacy is closed, only a certified pharmacy technician may assist another authorized, licensed health care professional to locate a drug or device pursuant to an emergent need. The pharmacy technician or the pharmacy support person may not dispense or deliver the drug, chemical, or device to the licensed health care professional. The licensed health care professional shall comply with established policies and procedures for obtaining drugs, devices, and chemicals when the pharmacy is closed. The licensed health care professional shall not ask or expect the pharmacy technician or the pharmacy support person to verify that the appropriate drug, chemical, or device has been obtained from the pharmacy.

c. A pharmacy technician or a pharmacy support person who is present in the pharmacy when the pharmacy is closed shall prepare and maintain in the pharmacy a log identifying each period of time that the pharmacy technician or pharmacy support person worked in the pharmacy while the pharmacy was

closed and identifying each activity performed during that time period. Each entry shall be dated and each daily record shall be signed by the pharmacy technician or pharmacy support person who prepared the record. The log shall be periodically reviewed by the pharmacist in charge.

d. Activities which shall not be performed by a pharmacy technician or a pharmacy support person when the pharmacist is absent from the facility include:

(1) Dispensing, delivering, or distributing any prescription drugs or devices to patients or others, including health care professionals, prior to pharmacist verification. Verification by a nurse or other licensed health care professional shall not supplant verification by a pharmacist.

(2) Providing the final verification for the accuracy, validity, completeness, or appropriateness of a filled prescription or medication order.

(3) Conducting prospective drug use review or evaluating a patient's medication record for purposes identified in rule 657—8.21(155A).

(4) Providing patient counseling, consultation, or drug information.

(5) Making decisions that require a pharmacist's professional judgment such as interpreting or applying information.

(6) Preparing compounded drug products for immediate administration by other hospital staff or health care professionals without verification by a pharmacist.

7.6(3) *Locked areas.* All pharmacy areas where drugs or devices are maintained or stored and where a pharmacist is not continually present shall be locked.

7.6(4) *Verification by pharmacist.* When the pharmacy is open, patient-specific drugs or devices shall not be distributed prior to the pharmacist's final verification and approval.

7.6(5) *Drugs or devices in patient care areas.* Drugs or devices maintained or stored in patient care areas shall be in locked storage unless the patient care unit is staffed by health care personnel and the medication area is visible to staff at all times.

[**ARC 8673B**, IAB 4/7/10, effective 6/1/10; **ARC 9408B**, IAB 3/9/11, effective 4/13/11]

657—7.7(155A) Verification by pharmacist when pharmacy is closed. A hospital pharmacy may contract with another pharmacy for remote pharmacist preview and verification of patient-specific drugs or devices ordered for a patient when the hospital pharmacy is closed. Contracted services may include pharmacist order entry pursuant to subrule 7.8(3). Pharmacies entering into a contract or agreement pursuant to this rule shall comply with the following requirements:

7.7(1) *Nonsupplanting service.* A contract or agreement for remote pharmacist services shall not relieve the hospital pharmacy from employing or contracting with a pharmacist to provide routine pharmacy services within the facility. The activities authorized by this rule are intended to supplement hospital pharmacy services when the pharmacy is closed and are not intended to eliminate the need for an on-site hospital pharmacy or pharmacist.

7.7(2) *Hospital-staff pharmacist.* Nothing in this rule shall prohibit a pharmacist employed by or contracting with a hospital pharmacy for on-site services from also providing remote preview and verification of patient-specific drugs or devices ordered for a patient when the hospital pharmacy is closed. A pharmacist previewing and verifying drug or device orders from a remote location shall have access to patient information pursuant to subrule 7.7(4) or 7.7(5), shall have access to the prescriber as provided in subrule 7.7(6), and shall be identified on the drug or device order as provided in subrule 7.7(7).

7.7(3) *Licenses required.* A pharmacy contracting with a hospital pharmacy to provide services pursuant to this rule shall maintain with the board a current Iowa pharmacy license. A remote pharmacist providing pharmacy services as an employee or agent of a contracting pharmacy pursuant to this rule shall be licensed to practice pharmacy in Iowa.

7.7(4) *Electronic access to patient information.* The remote pharmacist shall have secure electronic access to the hospital pharmacy's patient information system and to all other electronic systems that the on-site pharmacist has access to when the pharmacy is open. The remote pharmacist shall receive training in the use of the hospital's electronic systems.

7.7(5) *Nonelectronic patient information.* If a hospital's patient information is not maintained in an electronic data system or if the hospital pharmacy is not able to provide remote electronic access to the patient information system, the hospital pharmacy may petition for a waiver of subrule 7.7(4) pursuant to 657—Chapter 34 and this subrule. In addition to the information required pursuant to 657—Chapter 34, the petition for waiver shall identify the hospital pharmacy's alternative to the electronic sharing of patient information, shall explain in detail how the alternative method will ensure timely provision of patient information necessary for the remote pharmacist to effectively review the patient's drug regimen and history, and shall detail the processes involved in the alternative proposal including identification of all individuals involved in each of those processes.

7.7(6) *Access to prescriber.* The remote pharmacist shall be able to contact the prescriber to discuss any concerns identified during the pharmacist's review of the patient's information.

7.7(7) *Pharmacist identified.* The record of each patient-specific drug or device order processed pursuant to this rule shall identify, by name or other unique identifier, each pharmacist involved in the preview and verification of the order. The record of each patient-specific drug or device visually verified pursuant to this rule shall identify, by name or other unique identifier, each pharmacist involved in the visual verification of the product.

[**ARC 9408B**, IAB 3/9/11, effective 4/13/11]

657—7.8(124,126,155A) Drug distribution and control. Policies and procedures governing drug distribution and control shall be developed by the pharmacist in charge with input from other involved hospital staff such as physicians and nurses, from committees such as the pharmacy and therapeutics committee or its equivalent, and from any related patient care committee. It is essential that the pharmacist in charge or designee routinely be available to or on all patient care areas to establish rapport with the personnel and to become familiar with and contribute to medical and nursing procedures relating to drugs.

7.8(1) *Drug preparation.* The pharmacist shall institute the control procedures needed to ensure that patients receive the correct drugs at the proper times. Adequate quality assurance procedures shall be developed.

a. Hospitals shall utilize a unit dose dispensing system pursuant to rule 657—22.1(155A). All drugs dispensed by the pharmacist for administration to patients shall be in single unit or unit dose packages if practicable unless the dosage form or drug delivery device makes it impracticable to package the drug in a unit dose or single unit package.

(1) The pharmacist in charge shall establish policies and procedures that identify situations when drugs may be dispensed in other than unit dose or single unit packages outside the unit dose dispensing system.

(2) The need for nurses to manipulate drugs prior to their administration shall be minimized.

b. Pharmacy personnel shall, except as specified in policies and procedures, prepare all sterile products in conformance with 657—Chapter 13.

c. Pharmacy personnel shall compound or prepare drug formulations, strengths, dosage forms, and packages useful in the care of patients.

7.8(2) *Drug formulary.* The pharmacist in charge shall maintain a current formulary of drug products approved for use in the institution and shall be responsible for specifications for those drug products and for selecting their source of supply.

7.8(3) *Medication orders.* Except as provided in subrule 7.8(14) or this subrule, a pharmacist shall receive a copy of an original written medication order for review except when the prescriber directly enters the medication order into an electronic medical record system or when the prescriber issues a verbal medication order directly to a registered nurse or pharmacist who then enters the order into an electronic medical record system.

a. Verbal order. The use of verbal orders shall be minimized. All verbal orders shall be read back to the prescriber, and the read back shall be documented with or on the order.

b. Written order not entered by prescriber. If an individual other than the prescriber enters a medication order into an electronic medical record system from an original written medication

order, the pharmacist shall review and verify the entry against the original written order before the drug is dispensed except for emergency use, when the pharmacy is closed, or as provided in rule 657—7.7(155A).

c. Order entered when pharmacy closed. When the pharmacy is closed, a registered nurse or pharmacist may enter a medication order into an electronic medical record system for the purpose of creating an electronic medication administration record and a pharmacist shall verify the entry against the original written medication order, if such written order exists, as soon as practicable.

d. System security. Hospitalwide and pharmacy stand-alone computer systems shall be secure against unauthorized entry. System login or access credentials issued to an authorized system user shall not be shared or disclosed to any other individual.

e. Abbreviations and chemical symbols on orders. The use of abbreviations and chemical symbols on medication orders shall be discouraged but, if used, shall be limited to abbreviations and chemical symbols approved by the appropriate patient care committee.

7.8(4) *Stop order.* A written policy or other system concerning stop orders shall be established to ensure that medication orders are not inappropriately continued.

7.8(5) *Emergency drug supplies and floor stock.* Supplies of drugs for use in medical emergencies shall be immediately available at each nursing unit or service area as specified in policies and procedures. Authorized stocks shall be periodically reviewed in a multidisciplinary manner. All drug storage areas within the hospital shall be routinely inspected to ensure that no outdated or unusable items are present and that all stock items are properly labeled and stored.

7.8(6) *Disaster services.* The pharmacy shall be prepared to provide drugs and pharmaceutical services in the event of a disaster affecting the availability of drugs or internal access to drugs or access to the pharmacy.

7.8(7) *Drugs brought into the institution.* The pharmacist in charge shall determine those circumstances when patient-owned drugs brought into the institution may be administered to a hospital patient and shall establish policies and procedures governing the use and security of drugs brought into the institution. Procedures shall address identification of the drug and methods for ensuring the integrity of the product prior to permitting its use by the patient. The use of patient-owned drugs shall be minimized to the greatest extent possible.

7.8(8) *Samples.* The use of drug samples within the institution shall be eliminated to the extent possible. Sample use is prohibited for hospital inpatient use. If the use of drug samples is permitted for hospital outpatients, that use of samples shall be controlled and the samples shall be distributed through the pharmacy or through a process developed in cooperation with the pharmacy and the institution's appropriate patient care committee, subject to oversight by the pharmacy.

7.8(9) *Investigational drugs.* If investigational drugs are used in the institution:

a. A pharmacist shall be a member of the institutional review board.

b. The pharmacy shall be responsible, in cooperation with the principal investigator, for providing information about investigational drugs used in the institution and for the distribution and control of those drugs.

7.8(10) *Hazardous drugs and chemicals.* The pharmacist, in cooperation with other hospital staff, shall establish policies and procedures for handling drugs and chemicals that are known occupational hazards. The procedures shall maintain the integrity of the drug or chemical and protect hospital personnel.

7.8(11) *Leave meds.* Labeling of prescription drugs for a patient on leave from the facility for a period in excess of 24 hours shall comply with 657—subrule 6.10(1). The dispensing pharmacy shall be responsible for packaging and labeling leave meds in compliance with this subrule.

7.8(12) *Discharge meds.* Drugs authorized for a patient being discharged from the facility shall be labeled in compliance with 657—subrule 6.10(1) before the patient removes those drugs from the facility premises. The dispensing pharmacy shall be responsible for packaging and labeling discharge meds in compliance with this subrule.

7.8(13) *Own-use outpatient prescriptions.* If the hospital pharmacy dispenses own-use outpatient prescriptions, the pharmacy shall comply with all requirements of 657—Chapter 6 except rule 657—6.1(155A).

7.8(14) *Influenza and pneumococcal vaccines.* As authorized by federal law, a written or verbal patient-specific medication administration order shall not be required prior to administration to an adult patient of influenza and pneumococcal polysaccharide vaccines pursuant to physician-approved hospital policy and after the patient has been assessed for contraindications. Administration shall be recorded in the patient's medical record.

[**ARC 8170B**, IAB 9/23/09, effective 10/28/09; **ARC 9911B**, IAB 12/14/11, effective 1/18/12]

657—7.9(124,155A) Drug information. The pharmacy is responsible for providing the institution's staff and patients with accurate, comprehensive information about drugs and their use and shall serve as its center for drug information.

7.9(1) *Staff education.* The pharmacist shall keep the institution's staff well informed about the drugs used in the institution and their various dosage forms and packagings.

7.9(2) *Patient education.* The pharmacist shall help ensure that all patients are given adequate information about the drugs that they receive. This is particularly important for ambulatory, home care, and discharged patients. These patient education activities shall be coordinated with the nursing and medical staffs and patient education department, if any.

657—7.10(124,155A) Ensuring rational drug therapy. An important aspect of pharmaceutical services is that of maximizing rational drug use. The pharmacist, in concert with the medical staff, shall develop policies and procedures for ensuring the quality of drug therapy.

7.10(1) *Patient profile.* Sufficient patient information shall be collected, maintained, and reviewed by the pharmacist to ensure meaningful and effective participation in patient care. This requires that a drug profile be maintained for each patient receiving care at the hospital. A pharmacist-conducted drug history from patients may be useful in this regard.

a. Appropriate clinical information about patients shall be available and accessible to the pharmacist for use in daily practice.

b. The pharmacist shall review each patient's current drug regimen and directly communicate any suggested changes to the prescriber.

7.10(2) *Adverse drug events.* The pharmacist, in cooperation with the appropriate patient care committee, shall develop a mechanism for the reporting and review, by the committee or other appropriate medical group, of adverse drug events. The pharmacist shall be informed of all reported adverse drug events occurring in the facility. Adverse drug events include but need not be limited to adverse drug reactions and medication errors.

657—7.11(124,126,155A) Outpatient services. No prescription drugs shall be dispensed to patients in a hospital outpatient setting. If a need is established for the dispensing of a prescription drug to an outpatient, a prescription drug order shall be provided to the patient to be filled at a pharmacy of the patient's choice.

7.11(1) *Definitions.* For the purposes of this rule, the following definitions shall apply:

"Emergency department patient" means an individual who is examined and evaluated in the emergency department.

"Outpatient" means an individual examined and evaluated by a prescriber who determined the individual's need for the administration of a drug or device, which individual presents to the hospital outpatient setting with a prescription or order for administration of a drug or device. "Outpatient" does not include an emergency department patient.

"Outpatient medication order" means a written order from a prescriber or an oral or electronic order from a prescriber or the prescriber's authorized agent for administration of a drug or device. An outpatient medication order may authorize continued or periodic administration of a drug or device for

a period of time and frequency determined by the prescriber or by hospital policy, not to exceed legal limits for the refilling of a prescription drug order.

7.11(2) *Administration in the outpatient setting.* Drugs shall be administered only to outpatients who have been examined and evaluated by a prescriber who determined the patient's need for the drug therapy ordered.

a. Accountability. A system of drug control and accountability shall be developed and supervised by the pharmacist in charge and the facility's outpatient services committee, or a similar group or person responsible for policy in the outpatient setting. The system shall ensure accountability of drugs incidental to outpatient nonemergency therapy or treatment. Drugs shall be administered only in accordance with the system.

b. Controlled substances. Controlled substances maintained in the outpatient setting are kept for use by or at the direction of prescribers for the nonemergency therapy or treatment of outpatients. In order to receive a controlled substance, a patient shall be examined in the outpatient setting or in an alternate practice setting or office by a prescriber who shall determine the patient's need for the drug. If the patient is examined in a setting outside the outpatient setting, the prescriber shall provide the patient with a written prescription or order to be presented at the hospital outpatient setting.

c. Outpatient medication orders. A prescriber may authorize, by outpatient medication order, the periodic administration of a drug to an outpatient.

(1) Schedule II controlled substance. An outpatient medication order for administration of a Schedule II controlled substance shall be written and, except as provided in rule 657—10.25(124) regarding the issuance of multiple Schedule II prescriptions, shall authorize a single administration of the prescribed substance.

(2) Schedule III, IV, or V controlled substance. An outpatient medication order for administration of a Schedule III, IV, or V controlled substance shall be written and may be authorized for a period not to exceed six months from the date ordered.

(3) Noncontrolled substance. An outpatient medication order for administration of a noncontrolled prescription drug may be authorized for a period not to exceed 18 months from the date ordered.

[**ARC 8909B**, IAB 6/30/10, effective 8/4/10]

657—7.12(124,126,155A) Drugs in the emergency department. Drugs maintained in the emergency department are kept for use by or at the direction of prescribers in the emergency department. Drugs shall be administered or dispensed only to emergency department patients. For the purposes of this rule, "emergency department patient" means an individual who is examined and evaluated in the emergency department.

7.12(1) *Accountability.* A system of drug control and accountability shall be developed and supervised by the pharmacist in charge and the facility's emergency department committee, or a similar group or person responsible for policy in the emergency department. The system shall identify drugs of the nature and type to meet the immediate needs of emergency department patients. Drugs shall be administered or dispensed only in accordance with the system.

7.12(2) *Controlled substances.* Controlled substances maintained in the emergency department are kept for use by or at the direction of prescribers in the emergency department.

a. In order to receive a controlled substance, a patient shall be examined in the emergency department by a prescriber who shall determine the need for the drug. It is not permissible under state and federal regulations for a prescriber to see a patient outside the emergency department setting, or talk to the patient on the telephone, and then proceed to call the emergency department and order the administration of a stocked controlled substance upon the patient's arrival at the emergency department except as provided in paragraph 7.12(2)*"c"* or *"d."*

b. A prescriber may authorize, without again examining the patient, the administration of additional doses of a previously authorized drug to a patient presenting to the emergency department within 24 hours of the patient's examination and treatment in the emergency department.

c. In an emergency situation when a health care practitioner authorized to prescribe controlled substances is not available on site, and regardless of the provisions of paragraph 7.12(2)*"a,"* the

emergency department nurse may examine the patient in the emergency department and contact the on-call prescriber. The on-call prescriber may then authorize the nurse to administer a controlled substance to the patient pending the arrival of the prescriber at the emergency department. As soon as possible, the prescriber shall examine the patient in the emergency department and determine the patient's further treatment needs.

d. In an emergency situation when a health care practitioner authorized to prescribe controlled substances examines a patient in the prescriber's office and determines a need for the administration of a controlled substance, and regardless of the provisions of paragraph 7.12(2)*"a,"* the prescriber may direct the patient to present to the emergency department, with a valid written prescription or order for the administration of the controlled substance. As soon as possible, the prescriber shall examine the patient in the emergency department and determine the patient's further treatment needs.

7.12(3) *Drug dispensing.* In those facilities with 24-hour pharmacy services, only a pharmacist or prescriber may dispense any drugs to an emergency department patient. In those facilities located in an area of the state where 24-hour outpatient or 24-hour on-call pharmacy services are not available within 15 miles of the hospital, and which facilities are without 24-hour outpatient pharmacy services, the provisions of this rule shall apply.

a. Pharmacist in charge responsibility. The pharmacist in charge is responsible for maintaining accurate records of dispensing of drugs from the emergency department and for ensuring the accuracy of prepackaged drugs and the complete and accurate labeling of prepackaged drugs pursuant to this paragraph.

(1) Prepackaging. Except as provided in subrule 7.12(4), drugs dispensed to an emergency department patient in greater than a 24-hour supply may be dispensed only in prepackaged quantities not to exceed a 72-hour supply or the minimum prepackaged quantity in suitable containers, except that a seven-day supply of doxycycline provided through the department of public health pursuant to the crime victim compensation program of the Iowa department of justice may be dispensed for the treatment of a victim of sexual assault. Prepackaged drugs shall be prepared pursuant to the requirements of rule 657—22.3(126).

(2) Labeling. Drugs dispensed pursuant to this paragraph shall be appropriately labeled as required in paragraph 7.12(3)*"b,"* including necessary auxiliary labels.

b. Prescriber responsibility. Except as provided in subrule 7.12(4), a prescriber who authorizes dispensing of a prescription drug to an emergency department patient is responsible for the accuracy of the dispensed drug and for the accurate completion of label information pursuant to this paragraph.

(1) Labeling. Except as provided in subrule 7.12(4), at the time of delivery of the drug the prescriber shall appropriately complete the label such that the dispensing container bears a label with at least the following information:

1. Name and address of the hospital;
2. Date dispensed;
3. Name of prescriber;
4. Name of patient;
5. Directions for use;
6. Name and strength of drug.

(2) Delivery of drug to patient. Except as provided in subrule 7.12(4), the prescriber, or a licensed nurse under the supervision of the prescriber, shall give the appropriately labeled, prepackaged drug to the patient or patient's caregiver. The prescriber, or a licensed nurse under the supervision of the prescriber, shall explain the correct use of the drug and shall explain to the patient that the dispensing is for an emergency or starter supply of the drug. If additional quantities of the drug are required to complete the needed course of treatment, the prescriber shall provide the patient with a prescription for the additional quantities.

7.12(4) *Use of InstyMeds dispensing system.* A hospital located in an area of the state where 24-hour outpatient pharmacy services are not available within 15 miles of the hospital may implement the InstyMeds dispensing system in the hospital emergency department only as provided by this subrule.

a. Persons with access to the dispensing machine for the purposes of stocking, inventory, and monitoring shall be limited to pharmacists, pharmacy technicians, and pharmacist-interns.

b. The InstyMeds dispensing system shall be used only in the hospital emergency department for the benefit of patients examined or treated in the emergency department.

c. The dispensing machine shall be located in a secure and professionally appropriate environment.

d. The stock of drugs maintained and dispensed utilizing the InstyMeds dispensing system shall be limited to acute care drugs provided in appropriate quantities for a 72-hour supply or the minimum commercially available package size, except that antimicrobials may be dispensed in a quantity to provide the full course of therapy.

e. Drugs dispensed utilizing the InstyMeds dispensing system shall be appropriately labeled as provided in 657—subrule 6.10(1), paragraphs *"a"* through *"g."*

f. Prior to authorizing the dispensing of a drug utilizing the InstyMeds dispensing system, the prescriber shall offer the patient the option of being provided a prescription that may be filled at the pharmacy of the patient's choice.

g. When appropriate for an acute condition, the prescriber shall provide to the patient or the patient's caregiver a prescription for the remainder of drug therapy beyond the supply available utilizing the InstyMeds dispensing system. During consultation with the patient or the patient's caregiver, the prescriber shall clearly explain the appropriate use of the drug supplied, the need to have a prescription for any additional supply of the drug filled at a pharmacy of the patient's choice, and the need to complete the full course of drug therapy.

h. The pharmacy shall, in conjunction with the hospital emergency department, implement policies and procedures to ensure that a patient utilizing the InstyMeds dispensing system has been positively identified.

i. The hospital pharmacist shall review the printout of drugs provided utilizing the InstyMeds dispensing system within 24 hours unless the pharmacy is closed, in which case the printout shall be reviewed during the first day the pharmacy is open following the provision of the drugs. The purpose of the review is to identify any dispensing errors, to determine dosage appropriateness, and to complete a retrospective drug use review of any antimicrobials dispensed in a quantity greater than a 72-hour supply. Any discrepancies found shall be addressed by the pharmacy's continuous quality improvement program.

[**ARC 8909B**, IAB 6/30/10, effective 8/4/10]

657—7.13(124,155A) Records. Every inventory or other record required to be kept under this chapter or other board rules or under Iowa Code chapters 124 and 155A shall be kept by the pharmacy and be available for inspection and copying by the board or its representative for at least two years from the date of such inventory or record unless a longer retention period is specified for the particular inventory or record.

7.13(1) *Medication order information.* Each original medication order contained in inpatient records shall bear the following information:

a. Patient name and identification number;

b. Drug name, strength, and dosage form;

c. Directions for use;

d. Date ordered;

e. Practitioner's signature or electronic signature or that of the practitioner's authorized agent.

7.13(2) *Medication order maintained.* The original medication order shall be maintained with the medication administration record in the medical records of the patient following discharge.

7.13(3) *Documentation of drug administration.* Each dose of medication administered shall be properly recorded in the patient's medical record.

These rules are intended to implement Iowa Code sections 124.301, 124.303, 124.306, 126.10, 126.11, 155A.6, 155A.13, 155A.27, 155A.28, 155A.31, and 155A.33 through 155A.36.

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◊ Two or more ARCs

CHAPTER 8
UNIVERSAL PRACTICE STANDARDS
[Prior to 2/10/88, see Pharmacy Examiners[620] Ch 6]

657—8.1(155A) Purpose and scope. The requirements of these rules apply to all Iowa-licensed pharmacists and to all pharmacies providing the services addressed in this chapter to patients in Iowa and are in addition to rules of the board relating to specific types of pharmacy licenses issued by the board.

657—8.2(155A) Pharmaceutical care. Pharmaceutical care is a comprehensive, patient-centered, outcomes-oriented pharmacy practice in which the pharmacist accepts responsibility for assisting the prescriber and the patient in optimizing the patient's drug therapy plan and works to promote health, to prevent disease, and to optimize drug therapy. Pharmaceutical care does not include the prescribing of drugs without the consent of the prescribing practitioner.

8.2(1) *Drug therapy problems.* In providing pharmaceutical care, the pharmacist shall strive to identify, resolve, and prevent drug therapy problems.

8.2(2) *Drug therapy plan.* In providing pharmaceutical care, the pharmacist shall access and evaluate patient-specific information, identify drug therapy problems, and utilize that information in a documented plan of therapy that assists the patient or the patient's caregiver in achieving optimal drug therapy. In concert with the patient, the patient's prescribing practitioner, and the patient's other health care providers, the pharmacist shall assess, monitor, and suggest modifications of the plan as appropriate.

8.2(3) *Eligibility.* Any Iowa-licensed pharmacist may practice pharmaceutical care.

657—8.3(155A) Responsibility.

8.3(1) *Pharmacy operations.* The pharmacy and the pharmacist in charge share responsibility for ensuring that all operations of the pharmacy are in compliance with federal and state laws, rules, and regulations relating to pharmacy operations and the practice of pharmacy.

8.3(2) *Practice functions.* The pharmacist is responsible for all functions performed in the practice of pharmacy. The pharmacist maintains responsibility for any and all delegated functions including functions delegated to pharmacist-interns, pharmacy technicians, and pharmacy support persons.

8.3(3) *Pharmacist-documented verification.* The pharmacist shall provide and document the final verification for the accuracy, validity, completeness, and appropriateness of the patient's prescription or medication order prior to the delivery of the medication to the patient or the patient's representative.
[**ARC 8673B**, IAB 4/7/10, effective 6/1/10]

657—8.4(155A) Pharmacist identification and staff logs.

8.4(1) *Display of pharmacist license.* During any period the pharmacist is working in a pharmacy, each pharmacist shall display, in a position visible to the public, an original license to practice pharmacy. A current license renewal certificate, which may be a photocopy of an original renewal certificate, shall be displayed with the original license.

8.4(2) *Identification codes.* A permanent log of the initials or identification codes identifying by name each dispensing pharmacist, pharmacist-intern, pharmacy technician, and pharmacy support person shall be maintained for a minimum of two years and shall be available for inspection and copying by the board or its representative. The initials or identification code shall be unique to the individual to ensure that each pharmacist, pharmacist-intern, pharmacy technician, and pharmacy support person can be identified.

8.4(3) *Temporary or intermittent pharmacy staff.* The pharmacy shall maintain a log of all pharmacists, pharmacist-interns, pharmacy technicians, and pharmacy support persons who have worked at that pharmacy and who are not regularly staffed at that pharmacy. Such log shall include the dates and shifts worked by each pharmacist, pharmacist-intern, pharmacy technician, and pharmacy support person and shall be available for inspection and copying by the board or its representative for a minimum of two years following the date of the entry.

8.4(4) *Identification badge.* A pharmacist shall wear a visible identification badge while on duty that clearly identifies the person as a pharmacist and includes at least the pharmacist's first name.
[**ARC 8673B**, IAB 4/7/10, effective 6/1/10; **ARC 9409B**, IAB 3/9/11, effective 4/13/11]

657—8.5(155A) Environment and equipment requirements. There shall be adequate space, equipment, and supplies for the professional and administrative functions of the pharmacy. Space and equipment in an amount and type to provide secure, environmentally controlled storage of drugs shall be available.

8.5(1) *Refrigeration.* The pharmacy shall maintain one or more refrigeration units. The temperature of the refrigerator shall be maintained within a range compatible with the proper storage of drugs requiring refrigeration, and a thermometer shall be maintained in the refrigerator to verify the temperature.

8.5(2) *Sink.* The pharmacy shall have a sink with hot and cold running water located within the pharmacy department and available to all pharmacy personnel; the sink shall be maintained in a sanitary condition.

8.5(3) *Secure barrier.* The pharmacy department shall be surrounded by a physical barrier capable of being securely locked to prevent entry when the department is closed. A secure barrier may be constructed of other than a solid material with a continuous surface if the openings in the material are not large enough to permit removal of items from the pharmacy department by any means. Any material used in the construction of the barrier shall be of sufficient strength and thickness that it cannot be readily or easily removed, penetrated, or bent. The plans and specifications of the barrier shall be submitted to the board for approval prior to the start of construction. The board may also require on-site inspection of the facility or pharmacy department prior to the pharmacy's opening or relocation. The pharmacy department shall be closed and secured in the absence of the pharmacist except as provided in rule 657—6.7(124,155A) or 657—7.6(124,155A).

8.5(4) *Orderly and clean.* The pharmacy shall be arranged in an orderly fashion and kept clean. All required equipment shall be in good operating condition and maintained in a sanitary manner. Animals shall not be allowed within a licensed pharmacy unless that pharmacy is exclusively providing services for the treatment of animals or unless the animal is a service dog or assistive animal as defined in Iowa Code subsection 216C.11(1).

8.5(5) *Light and ventilation.* The pharmacy shall be properly lighted and ventilated.

8.5(6) *Temperature and humidity.* The temperature and humidity of the pharmacy shall be maintained within a range compatible with the proper storage of drugs.

8.5(7) *Other equipment.* The pharmacist in charge shall ensure the availability of any other equipment necessary for the particular practice of pharmacy and to meet the needs of the patients served by the pharmacy.

8.5(8) *Bulk counting machines.* Unless bar-code scanning is required and utilized to verify the identity of each stock container of drugs utilized to restock a counting machine cell or bin, a pharmacist shall verify the accuracy of the drugs to be restocked prior to filling the counting machine cell or bin. A record identifying the individual who verified the drugs to be restocked, the individual who restocked the counting machine cell or bin, and the date shall be maintained. The pharmacy shall have a method to calibrate and verify the accuracy of the counting device and shall, at least quarterly, verify the accuracy of the device and maintain a dated record identifying the individual who performed the quarterly verification.
[**ARC 8671B**, IAB 4/7/10, effective 5/12/10]

657—8.6(155A) Health of personnel. Only personnel authorized by the responsible pharmacist shall be in the immediate vicinity of the drug dispensing, preparation, compounding, or storage areas. Any person shown, either by medical examination or pharmacist determination, to have an apparent illness or open lesions that may adversely affect the quality or safety of a drug product or another individual shall be excluded from direct contact with components, bulk drug substances, drug product containers, closures, in-process materials, drug products, and patients until the condition is corrected or determined by competent medical personnel not to jeopardize the quality or safety of drug products or patients. All

personnel who normally assist the pharmacist shall be instructed to report to the pharmacist any health conditions that may have an adverse effect on drug products or may pose a health or safety risk to others.

657—8.7(155A) Procurement, storage, and recall of drugs and devices.

8.7(1) *Source.* Procurement of prescription drugs and devices shall be from a drug wholesaler licensed by the board to distribute to Iowa pharmacies or, on a limited basis, from another licensed pharmacy or licensed practitioner located in the United States.

8.7(2) *Sufficient stock.* A pharmacy shall maintain sufficient stock of drugs and devices to fulfill the foreseeable needs of the patients served by the pharmacy.

8.7(3) *Manner of storage.* Drugs and devices shall be stored in a manner to protect their identity and integrity.

8.7(4) *Storage temperatures.* All drugs and devices shall be stored at the proper temperature, as defined by the following terms:

a. "Controlled room temperature" means temperature maintained thermostatically between 15 degrees and 30 degrees Celsius (59 degrees and 86 degrees Fahrenheit);

b. "Cool" means temperature between 8 degrees and 15 degrees Celsius (46 degrees and 59 degrees Fahrenheit). Drugs and devices may be stored in a refrigerator unless otherwise specified on the labeling;

c. "Refrigerate" means temperature maintained thermostatically between 2 degrees and 8 degrees Celsius (36 degrees and 46 degrees Fahrenheit); and

d. "Freeze" means temperature maintained thermostatically between -20 degrees and -10 degrees Celsius (-4 degrees and 14 degrees Fahrenheit).

8.7(5) *Product recall.* There shall be a system for removing from use, including unit dose, any drugs and devices subjected to a product recall.

657—8.8(124,155A) Out-of-date drugs or devices. Any drug or device bearing an expiration date shall not be dispensed for use beyond the expiration date of the drug or device. Outdated drugs or devices shall be removed from dispensing stock and shall be quarantined until such drugs or devices are properly disposed of.

657—8.9(124,155A) Records. Every inventory or other record required to be maintained by a pharmacy pursuant to board rules or Iowa Code chapters 124 and 155A shall be maintained and be available for inspection and copying by the board or its representative for at least two years from the date of such inventory or record unless a longer retention period is specified for the particular record or inventory. Original hard-copy prescription and other pharmacy records more than 12 months old may be maintained in a secure storage area outside the licensed pharmacy department unless such remote storage is prohibited under federal law. A remote storage area shall be located within the same physical structure containing the licensed pharmacy department. The following records shall be maintained for at least two years.

8.9(1) *Drug supplier invoices.* All pharmacies shall maintain supplier invoices of prescription drugs and controlled substances upon which the actual date of receipt of the controlled substances by the pharmacist or other responsible individual is clearly recorded.

8.9(2) *Drug supplier credits.* All pharmacies shall maintain supplier credit memos for controlled substances and prescription drugs.

[**ARC 8539B**, IAB 2/24/10, effective 4/1/10]

657—8.10 Reserved.

657—8.11(147,155A) Unethical conduct or practice. The provisions of this rule apply to licensed pharmacies, licensed pharmacists, registered pharmacy technicians, registered pharmacy support persons, and registered pharmacist-interns.

8.11(1) *Misrepresentative deeds.* A pharmacist, technician, support person, or pharmacist-intern shall not make any statement intended to deceive, misrepresent or mislead anyone, or be a party to or

an accessory to any fraudulent or deceitful practice or transaction in pharmacy or in the operation or conduct of a pharmacy.

8.11(2) *Undue influence.*

a. A pharmacist shall not accept professional employment or share or receive compensation in any form arising out of, or incidental to, the pharmacist's professional activities from a prescriber of prescription drugs or any other person or corporation in which one or more such prescribers have a proprietary or beneficial interest sufficient to permit them to directly or indirectly exercise supervision or control over the pharmacist in the pharmacist's professional responsibilities and duties or over the pharmacy wherein the pharmacist practices.

b. A prescriber may employ a pharmacist to provide nondispensing, drug information, or other cognitive services.

8.11(3) *Lease agreements.* A pharmacist shall not lease space for a pharmacy under any of the following conditions:

a. From a prescriber of prescription drugs or a group, corporation, association, or organization of such prescribers on a percentage of income basis;

b. From a group, corporation, association, or organization in which prescribers have majority control or have directly or indirectly a majority beneficial or proprietary interest on a percentage of income basis; or

c. If the rent is not reasonable according to commonly accepted standards of the community in which the pharmacy will be located.

8.11(4) *Nonconformance with law.* A pharmacist, technician, support person, or pharmacist-intern shall not knowingly serve in a pharmacy which is not operated in conformance with law, or which engages in any practice which if engaged in by a pharmacist would be unethical conduct.

8.11(5) *Freedom of choice/solicitation/kickbacks/fee-splitting and imprinted prescription blanks or forms.* A pharmacist or pharmacy shall not enter into any agreement which negates a patient's freedom of choice of pharmacy services. A purchasing pharmacist or pharmacy shall not engage in any activity or include in any agreement with a selling pharmacist or pharmacy any provision that would prevent or prohibit the prior notifications required in subrule 8.35(7). A pharmacist or pharmacy shall not participate in prohibited agreements with any person in exchange for recommending, promoting, accepting, or promising to accept the professional pharmaceutical services of any pharmacist or pharmacy. "Person" includes an individual, corporation, partnership, association, firm, or other entity. "Prohibited agreements" includes an agreement or arrangement that provides premiums, "kickbacks," fee-splitting, or special charges as compensation or inducement for placement of business or solicitation of patronage with any pharmacist or pharmacy. "Kickbacks" includes, but is not limited to, the provision of medication carts, facsimile machines, any other equipment, or preprinted forms or supplies for the exclusive use of a facility or practitioner at no charge or billed below reasonable market rate. A pharmacist shall not provide, cause to be provided, or offer to provide to any person authorized to prescribe prescription blanks or forms bearing the pharmacist's or pharmacy's name, address, or other means of identification, except that a hospital may make available to hospital staff prescribers, emergency department prescribers, and prescribers granted hospital privileges for the prescribers' use during practice at or in the hospital generic prescription blanks or forms bearing the name, address, or telephone number of the hospital pharmacy.

8.11(6) *Discrimination.* It is unethical to unlawfully discriminate between patients or groups of patients for reasons of religion, race, creed, color, gender, gender identity, sexual orientation, marital status, age, national origin, physical or mental disability, or disease state when providing pharmaceutical services.

8.11(7) *Claims of professional superiority.* A pharmacist shall not make a claim, assertion, or inference of professional superiority in the practice of pharmacy which cannot be substantiated, or claim an unusual, unsubstantiated capacity to supply a drug or professional service to the community.

8.11(8) *Unprofessional conduct or behavior.* A pharmacist shall not exhibit unprofessional behavior in connection with the practice of pharmacy or refuse to provide reasonable information or answer reasonable questions for the benefit of the patient. Unprofessional behavior shall include, but not be

limited to, the following acts: verbal abuse, coercion, intimidation, harassment, sexual advances, threats, degradation of character, indecent or obscene conduct, and theft.
[**ARC 9526B**, IAB 6/1/11, effective 7/6/11]

657—8.12(126,147) Advertising. Prescription drug price and nonprice information may be provided to the public by a pharmacy so long as the information is not false or misleading and is not in violation of any federal or state laws applicable to the advertisement of such articles generally and if all of the following conditions are met:

1. All charges for services to the consumer must be stated.
2. The effective dates for the prices listed shall be stated.
3. No reference shall be made to controlled substances listed in Schedules II through V of the latest revision of the Iowa uniform controlled substances Act and the rules of the Iowa board of pharmacy.

657—8.13(135C,155A) Personnel histories. Pursuant to the requirements of Iowa Code section 135C.33, the provisions of this rule shall apply to any pharmacy employing any person to provide patient care services in a patient's home. For the purposes of this rule, "employed by the pharmacy" shall include any individual who is paid to provide treatment or services to any patient in the patient's home, whether the individual is paid by the pharmacy or by any other entity such as a corporation, a temporary staffing agency, or an independent contractor. Specifically excluded from the requirements of this rule are individuals such as delivery persons or couriers who do not enter the patient's home for the purpose of instructing the patient or the patient's caregiver in the use or maintenance of the equipment, device, or drug being delivered, or who do not enter the patient's home for the purpose of setting up or servicing the equipment, device, or drug used to treat the patient in the patient's home.

8.13(1) *Applicant acknowledgment.* The pharmacy shall ask the following question of each person seeking employment in a position that will provide in-home services: "Do you have a record of founded child or dependent adult abuse or have you ever been convicted of a crime, in this state or any other state?" The applicant shall also be informed that a criminal history and dependent adult abuse record check will be conducted. The applicant shall indicate, by signed acknowledgment, that the applicant has been informed that such record checks will be conducted.

8.13(2) *Criminal history check.* Prior to the employment of any person to provide in-home services as described by this rule, the pharmacy shall submit to the department of public safety a form specified by the department of public safety and receive the results of a criminal history check.

8.13(3) *Abuse history checks.* Prior to the employment of any person to provide in-home services as described by this rule, the pharmacy shall submit to the department of human services a form specified by the department of human services and receive the results of a dependent adult abuse record check. The pharmacy may submit to the department of human services a form specified by the department of human services to request a child abuse history check.

a. A person who has a criminal record, founded dependent adult abuse report, or founded child abuse report shall not be employed by a pharmacy to provide in-home services unless the department of human services has evaluated the crime or founded abuse report, has concluded that the crime or founded abuse does not merit prohibition from such employment, and has notified the pharmacy that the person may be employed to provide in-home services.

b. The pharmacy shall keep copies of all record checks and evaluations for a minimum of two years following receipt of the record or for a minimum of two years after the individual is no longer employed by the pharmacy, whichever is greater.

657—8.14(155A) Training and utilization of pharmacy technicians or pharmacy support persons. All Iowa-licensed pharmacies utilizing pharmacy technicians or pharmacy support persons shall develop, implement, and periodically review written policies and procedures for the training and utilization of pharmacy technicians and pharmacy support persons appropriate to the practice of pharmacy at that licensed location. Pharmacy policies shall specify the frequency of review. Pharmacy technician and pharmacy support person training shall be documented and maintained by the pharmacy

for the duration of employment. Policies and procedures and documentation of pharmacy technician and pharmacy support person training shall be available for inspection by the board or an agent of the board.
[**ARC 8673B**, IAB 4/7/10, effective 6/1/10]

657—8.15(155A) Delivery of prescription drugs and devices. Prescription drug orders, prescription devices, and completed prescription drug containers may be delivered, in compliance with all laws, rules, and regulations relating to the practice of pharmacy, to patients at any place of business licensed as a pharmacy.

8.15(1) *Alternative methods.* A licensed pharmacy may, by means of its employee or by use of a common carrier, pick up or deliver prescriptions to the patient or the patient's caregiver as follows:

a. At the office or home of the prescriber.

b. At the residence of the patient or caregiver.

c. At the hospital or medical care facility in which a patient is confined.

d. At an outpatient medical care facility where the patient receives treatment only pursuant to the following requirements:

(1) The pharmacy shall obtain and maintain the written authorization of the patient or patient's caregiver for receipt or delivery at the outpatient medical care facility;

(2) The prescription shall be delivered directly to or received directly from the patient, the caregiver, or an authorized agent identified in the written authorization;

(3) A prescription authorized by a prescriber not treating the patient at the outpatient medical care facility may be transmitted to the pharmacy by the authorized agent via facsimile provided that the means of transmission does not obscure or render the prescription information illegible due to security features of the paper utilized by the prescriber to prepare the prescription and provided that the original written prescription is delivered to the pharmacy prior to delivery of the filled prescription to the patient; and

(4) The outpatient medical care facility shall store the patient's filled prescriptions in a secure area pending delivery to the patient.

e. At the patient's or caregiver's place of employment only pursuant to the following requirements:

(1) The pharmacy shall obtain and maintain the written authorization of the patient or patient's caregiver for receipt or delivery at the place of employment;

(2) The prescription shall be delivered directly to or received directly from the patient, the caregiver, the prescriber, or an authorized agent identified in the written authorization; and

(3) The pharmacy shall ensure the security of confidential information as defined in subrule 8.16(1).

8.15(2) *Policies and procedures required.* Every pharmacy shipping or otherwise delivering prescription drugs or devices to Iowa patients shall develop and implement policies and procedures to ensure accountability, safe delivery, and compliance with temperature requirements as defined by subrule 8.7(4).
[**ARC 7636B**, IAB 3/11/09, effective 4/15/09]

657—8.16(124,155A) Confidential information.

8.16(1) *Definition.* "Confidential information" means information accessed or maintained by the pharmacy in the patient's records which contains personally identifiable information that could be used to identify the patient. This includes but is not limited to patient name, address, telephone number, and social security number; prescriber name and address; and prescription and drug or device information such as therapeutic effect, diagnosis, allergies, disease state, pharmaceutical services rendered, medical information, and drug interactions, regardless of whether such information is communicated to or from the patient, is in the form of paper, is preserved on microfilm, or is stored on electronic media.

8.16(2) *Release of confidential information.* Confidential information in the patient record may be released only as follows:

a. Pursuant to the express written authorization of the patient or the order or direction of a court.

b. To the patient or the patient's authorized representative.

c. To the prescriber or other licensed practitioner then caring for the patient.

d. To another licensed pharmacist when the best interests of the patient require such release.

e. To the board or its representative or to such other persons or governmental agencies duly authorized by law to receive such information.

A pharmacist shall utilize the resources available to determine, in the professional judgment of the pharmacist, that any persons requesting confidential patient information pursuant to this rule are entitled to receive that information.

8.16(3) *Exceptions.* Nothing in this rule shall prohibit pharmacists from releasing confidential patient information as follows:

a. Transferring a prescription to another pharmacy upon the request of the patient or the patient's authorized representative.

b. Providing a copy of a nonrefillable prescription to the person for whom the prescription was issued which is clearly marked as a copy and not to be filled.

c. Providing drug therapy information to physicians or other authorized prescribers for their patients.

d. Disclosing information necessary for the processing of claims for payment of health care operations or services.

e. Transferring, subject to the provisions of subrule 8.35(7), prescription and patient records of a pharmacy that discontinues operation as a pharmacy to another licensed pharmacy that is held to the same standards of confidentiality and that agrees to act as custodian of the transferred records.

8.16(4) *System security and safeguards.* To maintain the integrity and confidentiality of patient records and prescription drug orders, any system or computer utilized shall have adequate security including system safeguards designed to prevent and detect unauthorized access, modification, or manipulation of patient records and prescription drug orders.

8.16(5) *Record disposal.* Disposal of any materials containing or including patient-specific or confidential information shall be conducted in a manner to preserve patient confidentiality.

[**ARC 9526B**, IAB 6/1/11, effective 7/6/11]

657—8.17 and **8.18** Reserved.

657—8.19(124,126,155A) Manner of issuance of a prescription drug or medication order. A prescription drug order or medication order may be transmitted from a prescriber or a prescriber's agent to a pharmacy in written form, orally including telephone voice communication, by facsimile transmission as provided in rule 657—21.9(124,155A), or by electronic transmission in accordance with applicable federal and state laws, rules, and regulations. Any prescription drug order or medication order provided to a patient in written or printed form shall include the original, handwritten signature of the prescriber except as provided in rule 657—21.7(124,155A).

8.19(1) *Requirements for a prescription.* A valid prescription drug order shall be based on a valid patient-prescriber relationship.

a. Written, electronic, or facsimile prescription. In addition to the electronic prescription application and pharmacy prescription application requirements of this rule, a written, electronic, or facsimile prescription shall include:

(1) The date issued.

(2) The name and address of the patient.

(3) The name, strength, and quantity of the drug or device prescribed.

(4) The name and address of the prescriber and, if the prescription is for a controlled substance, the prescriber's DEA registration number.

(5) The written or electronic signature of the prescriber.

b. Written prescription. In addition to the requirements of paragraph 8.19(1)*"a,"* a written prescription shall be manually signed, with ink or indelible pencil, by the prescriber. The requirement for manual signature shall not apply when an electronically prepared and signed prescription for a noncontrolled substance is printed on security paper as provided in 657—paragraph 21.7(3)*"b."*

c. Facsimile prescription. In addition to the requirements of paragraph 8.19(1)*"a,"* a prescription transmitted via facsimile shall include:

(1) The identification number of the facsimile machine used to transmit the prescription to the pharmacy.

(2) The time and date of transmission of the prescription.

(3) The name, address, telephone number, and facsimile number of the pharmacy to which the prescription is being transmitted.

(4) If the prescription is for a controlled substance and in compliance with DEA regulations, the manual signature of the prescriber.

d. Electronic prescription. In addition to the requirements of paragraph 8.19(1)*"a,"* an electronically prepared prescription for a controlled or noncontrolled prescription drug or device that is electronically transmitted to a pharmacy shall include the prescriber's electronic signature.

(1) An electronically prepared prescription for a controlled substance that is printed out or faxed by the prescriber or the prescriber's agent shall be manually signed by the prescriber.

(2) The prescriber shall ensure that the electronic prescription application used to prepare and transmit the electronic prescription complies with applicable state and federal laws, rules, and regulations regarding electronic prescriptions.

(3) The prescriber or the prescriber's agent shall provide verbal verification of an electronic prescription upon the request of the pharmacy.

8.19(2) *Verification.* The pharmacist shall exercise professional judgment regarding the accuracy, validity, and authenticity of any prescription drug order or medication order consistent with federal and state laws, rules, and regulations. In exercising professional judgment, the prescribing practitioner and the pharmacist shall take adequate measures to guard against the diversion of prescription drugs and controlled substances through prescription forgeries.

8.19(3) *Transmitting agent.* The prescribing practitioner may authorize an agent to transmit to the pharmacy a prescription drug order or medication order orally, by facsimile transmission, or by electronic transmission provided that the first and last names and title of the transmitting agent are included in the order.

a. New order. A new written or electronically prepared and transmitted prescription drug or medication order shall be manually or electronically signed by the prescriber. If transmitted by the prescriber's agent, the first and last names and title of the transmitting agent shall be included in the order. If the prescription is for a controlled substance and is written or printed from an electronic prescription application, the prescription shall be manually signed by the prescriber prior to delivery of the prescription to the patient or prior to facsimile transmission of the prescription to the pharmacy. An electronically prepared prescription shall not be electronically transmitted to the pharmacy if the prescription has been printed prior to the electronic transmission. An electronically prepared and electronically transmitted prescription that is printed following the electronic transmission shall be clearly labeled as a copy, not valid for dispensing.

b. Refill order or renewal order. An authorization to refill a prescription drug or medication order, or to renew or continue an existing drug therapy, may be transmitted to a pharmacist through oral communication, in writing, by facsimile transmission, or by electronic transmission initiated by or directed by the prescriber.

(1) If the transmission is completed by the prescriber's agent and the first and last names and title of the transmitting agent are included in the order, the prescriber's signature is not required on the fax or alternate electronic transmission.

(2) If the order differs in any manner from the original order, such as a change of the drug strength, dosage form, or directions for use, the prescriber shall sign the order as provided by paragraph 8.19(3)*"a."*

8.19(4) *Receiving agent.* Regardless of the means of transmission to a pharmacy, only a pharmacist, a pharmacist-intern, or a certified pharmacy technician shall be authorized to receive a new prescription drug or medication order from a practitioner or the practitioner's agent. In addition to a pharmacist, a pharmacist-intern, and a certified pharmacy technician, a technician trainee or an uncertified pharmacy technician may receive a refill or renewal order from a practitioner or the practitioner's agent if the technician's supervising pharmacist has authorized that function.

8.19(5) *Legitimate purpose.* The pharmacist shall ensure that the prescription drug or medication order, regardless of the means of transmission, has been issued for a legitimate medical purpose by an authorized practitioner acting in the usual course of the practitioner's professional practice. A pharmacist shall not dispense a prescription drug if the pharmacist knows or should have known that the prescription was issued solely on the basis of an Internet-based questionnaire, an Internet-based consultation, or a telephonic consultation and without a valid preexisting patient-practitioner relationship.

8.19(6) *Refills.* A refill is one or more dispensings of a prescription drug or device that result in the patient's receipt of the quantity authorized by the prescriber for a single fill as indicated on the prescription drug order.

a. Noncontrolled prescription drug or device. A prescription for a prescription drug or device that is not a controlled substance may authorize no more than 12 refills within 18 months following the date on which the prescription is issued.

b. Controlled substance. A prescription for a Schedule III, IV, or V controlled substance may authorize no more than 5 refills within 6 months following the date on which the prescription is issued.

[**ARC 8171B**, IAB 9/23/09, effective 10/28/09; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—8.20(155A) Valid prescriber/patient relationship. Prescription drug orders and medication orders shall be valid as long as a prescriber/patient relationship exists. Once the prescriber/patient relationship is broken and the prescriber is no longer available to treat the patient or oversee the patient's use of a prescription drug, the order loses its validity and the pharmacist, on becoming aware of the situation, shall cancel the order and any remaining refills. The pharmacist shall, however, exercise prudent judgment based upon individual circumstances to ensure that the patient is able to obtain a sufficient amount of the prescribed drug to continue treatment until the patient can reasonably obtain the service of another prescriber and a new order can be issued.

657—8.21(155A) Prospective drug use review. For purposes of promoting therapeutic appropriateness and ensuring rational drug therapy, a pharmacist shall review the patient record, information obtained from the patient, and each prescription drug or medication order to identify:

1. Overutilization or underutilization;
2. Therapeutic duplication;
3. Drug-disease contraindications;
4. Drug-drug interactions;
5. Incorrect drug dosage or duration of drug treatment;
6. Drug-allergy interactions;
7. Clinical abuse/misuse;
8. Drug-prescriber contraindications.

Upon recognizing any of the above, the pharmacist shall take appropriate steps to avoid or resolve the problem and shall, if necessary, include consultation with the prescriber. The review and assessment of patient records shall not be delegated to staff assistants but may be delegated to registered pharmacist-interns under the direct supervision of the pharmacist.

657—8.22 to **8.25** Reserved.

657—8.26(155A) Continuous quality improvement program. Each pharmacy licensed to provide pharmaceutical services to patients in Iowa shall implement or participate in a continuous quality improvement program or CQI program. The CQI program is intended to be an ongoing, systematic program of standards and procedures to detect, identify, evaluate, and prevent medication errors, thereby improving medication therapy and the quality of patient care. A pharmacy that participates as an active member of a hospital or corporate CQI program that meets the objectives of this rule shall not be required to implement a new program pursuant to this rule.

8.26(1) *Reportable program events.* For purposes of this rule, a reportable program event or program event means a preventable medication error resulting in the incorrect dispensing of a prescribed drug received by or administered to the patient and includes but is not necessarily limited to:

a. An incorrect drug;

b. An incorrect drug strength;

c. An incorrect dosage form;

d. A drug received by the wrong patient;

e. Inadequate or incorrect packaging, labeling, or directions; or

f. Any incident related to a prescription dispensed to a patient that results in or has the potential to result in serious harm to the patient.

8.26(2) *Responsibility.* The pharmacist in charge is responsible for ensuring that the pharmacy utilizes a CQI program consistent with the requirements of this rule. The pharmacist in charge may delegate program administration and monitoring, but the pharmacist in charge maintains ultimate responsibility for the validity and consistency of program activities.

8.26(3) *Policies and procedures.* Each pharmacy shall develop, implement, and adhere to written policies and procedures for the operation and management of the pharmacy's CQI program. A copy of the pharmacy's CQI program description and policies and procedures shall be maintained and readily available to all pharmacy personnel. The policies and procedures shall address, at a minimum, a planned process to:

a. Train all pharmacy personnel in relevant phases of the CQI program;

b. Identify and document reportable program events;

c. Minimize the impact of reportable program events on patients;

d. Analyze data collected to assess the causes and any contributing factors relating to reportable program events;

e. Use the findings to formulate an appropriate response and to develop pharmacy systems and workflow processes designed to prevent and reduce reportable program events; and

f. Periodically, but at least annually, meet with appropriate pharmacy personnel to review findings and inform personnel of changes that have been made to pharmacy policies, procedures, systems, or processes as a result of CQI program findings.

8.26(4) *Event discovery and notification.* As provided by the procedures of the CQI program, the pharmacist in charge or appropriate designee shall be informed of and review all reported and documented program events. All pharmacy personnel shall be trained to immediately inform the pharmacist on duty of any discovered or suspected program event. When the pharmacist on duty determines that a reportable program event has occurred, the pharmacist shall ensure that all reasonably necessary steps are taken to remedy any problems or potential problems for the patient and that those steps are documented. Necessary steps include, but are not limited to, the following:

a. Notifying the patient or the patient's caregiver and the prescriber or other members of the patient's health care team as warranted;

b. Identifying and communicating directions or processes for correcting the error; and

c. Communicating instructions for minimizing any negative impact on the patient.

8.26(5) *CQI program records.* All CQI program records shall be maintained on site at the pharmacy or shall be accessible at the pharmacy and be available for inspection and copying by the board or its representative for at least two years from the date of the record. When a reportable program event occurs or is suspected to have occurred, the program event shall be documented in a written or electronic storage record created solely for that purpose. Records of program events shall be maintained in an orderly manner and shall be filed chronologically by date of discovery.

a. The program event shall initially be documented as soon as practicable by the staff member who discovers the event or is informed of the event.

b. Program event documentation shall include a description of the event that provides sufficient information to permit categorization and analysis of the event and shall include:

(1) The date and time the program event was discovered and the name of the staff person who discovered the event; and

(2) The names of the individuals recording and reviewing or analyzing the program event information.

8.26(6) *Program event analysis and response.* The pharmacist in charge or designee shall review each reportable program event and determine if follow-up is necessary. When appropriate, information and data collected and documented shall be analyzed, individually and collectively, to assess the cause and any factors contributing to the program event. The analysis may include, but is not limited to, the following:

a. A consideration of the effects on the quality of the pharmacy system related to workflow processes, technology utilization and support, personnel training, and both professional and technical staffing levels;

b. Any recommendations for remedial changes to pharmacy policies, procedures, systems, or processes; and

c. The development of a set of indicators that a pharmacy will utilize to measure its program standards over a designated period of time.

657—8.27 to **8.29** Reserved.

657—8.30(126,155A) Sterile products. Rescinded IAB 6/6/07, effective 7/11/07.

657—8.31 Reserved.

657—8.32(124,155A) Individuals qualified to administer. The board designates the following as qualified individuals to whom a practitioner may delegate the administration of prescription drugs. Any person specifically authorized under pertinent sections of the Iowa Code to administer prescription drugs shall construe nothing in this rule to limit that authority.

1. Persons who have successfully completed a medication administration course.
2. Licensed pharmacists.

657—8.33(147,155A) Supervision of pharmacists who administer adult immunizations. A physician may prescribe via written protocol adult immunizations for influenza and pneumococcal vaccines for administration by an authorized pharmacist if the physician meets these requirements for supervising the pharmacist.

8.33(1) *Definitions.*

a. *"Authorized pharmacist"* means an Iowa-licensed pharmacist who has documented that the pharmacist has successfully completed an organized course of study in a college or school of pharmacy or an Accreditation Council for Pharmacy Education (ACPE)-approved continuing pharmaceutical education program on vaccine administration that:

(1) Requires documentation by the pharmacist of current certification in the American Heart Association or the Red Cross Basic Cardiac Life Support Protocol for health care providers;

(2) Is an evidence-based course that includes study material and hands-on training and techniques for administering vaccines, requires testing with a passing score, complies with current Centers for Disease Control and Prevention guidelines, and provides instruction and experiential training in the following content areas:

1. Standards for immunization practices;
2. Basic immunology and vaccine protection;
3. Vaccine-preventable diseases;
4. Recommended immunization schedules;
5. Vaccine storage and management;
6. Informed consent;
7. Physiology and techniques for vaccine administration;
8. Pre- and post-vaccine assessment and counseling;
9. Immunization record management; and
10. Management of adverse events, including identification, appropriate response, documentation, and reporting.

b. *"Vaccine"* means a specially prepared antigen which, upon administration to a person, will result in immunity and, specifically for the purposes of this rule, shall mean influenza and pneumococcal vaccines.

c. *"Written protocol"* means a physician's order for one or more patients that contains, at a minimum, the following:

(1) A statement identifying the individual physician authorized to prescribe drugs and responsible for the delegation of administration of adult immunizations for influenza and pneumococcus;

(2) A statement identifying the individual authorized pharmacist;

(3) A statement that forbids an authorized pharmacist from delegating the administration of adult immunizations to anyone other than another authorized pharmacist, a registered pharmacist-intern under the direct personal supervision of the authorized pharmacist, or a registered nurse;

(4) A statement identifying the vaccines that may be administered by an authorized pharmacist, the dosages, and the route of administration;

(5) A statement identifying the activities an authorized pharmacist shall follow in the course of administering adult immunizations, including:

1. Procedures for determining if a patient is eligible to receive the vaccine;

2. Procedures for determining the appropriate scheduling and frequency of drug administration in accordance with applicable guidelines;

3. Procedures for record keeping and long-term record storage including batch or identification numbers;

4. Procedures to follow in case of life-threatening reactions; and

5. Procedures for the pharmacist and patient to follow in case of reactions following administration.

(6) A statement that describes how the authorized pharmacist shall report the administration of adult immunizations, within 30 days, to the physician issuing the written protocols and to the patient's primary care physician if one has been designated by the patient. In case of serious complications, the authorized pharmacist shall notify the physicians within 24 hours and submit a VAERS report to the bureau of immunizations, Iowa department of public health. (VAERS is the Vaccine Advisory Event Reporting System.) A serious complication is one that requires further medical or therapeutic intervention to effectively protect the patient from further risk, morbidity, or mortality.

8.33(2) *Supervision.* A physician who prescribes adult immunizations to an authorized pharmacist for administration shall adequately supervise that pharmacist. Physician supervision shall be considered adequate if the delegating physician:

a. Ensures that the authorized pharmacist is prepared as described in subrule 8.33(1), paragraph *"a"*;

b. Provides a written protocol that is updated at least annually;

c. Is available through direct telecommunication for consultation, assistance, and direction, or provides physician backup to provide these services when the physician supervisor is not available;

d. Is an Iowa-licensed physician who has a working relationship with an authorized pharmacist within the physician's local provider service area.

8.33(3) *Administration of other adult immunizations by pharmacists.* A physician may prescribe, for an individual patient by prescription or medication order, other adult immunizations to be administered by an authorized pharmacist.

This rule is intended to implement Iowa Code sections 147.76, 155A.3, 155A.4, and 272C.3.

657—8.34(155A) Collaborative drug therapy management. An authorized pharmacist may only perform collaborative drug therapy management pursuant to protocol with a physician pursuant to the requirements of this rule. The physician retains the ultimate responsibility for the care of the patient. The pharmacist is responsible for all aspects of drug therapy management performed by the pharmacist.

8.34(1) *Definitions.*

"Authorized pharmacist" means an Iowa-licensed pharmacist whose license is in good standing and who meets the drug therapy management criteria defined in this rule.

"Board" means the board of pharmacy.

"Collaborative drug therapy management" means participation by an authorized pharmacist and a physician in the management of drug therapy pursuant to a written community practice protocol or a written hospital practice protocol.

"Collaborative practice" means that a physician may delegate aspects of drug therapy management for the physician's patients to an authorized pharmacist through a community practice protocol. "Collaborative practice" also means that a P&T committee may authorize hospital pharmacists to perform drug therapy management for inpatients and hospital clinic patients through a hospital practice protocol.

"Community practice protocol" means a written, executed agreement entered into voluntarily between an authorized pharmacist and a physician establishing drug therapy management for one or more of the pharmacist's and physician's patients residing in a community setting. A community practice protocol shall comply with the requirements of subrule 8.34(2).

"Community setting" means a location outside a hospital inpatient, acute care setting or a hospital clinic setting. A community setting may include, but is not limited to, a home, group home, assisted living facility, correctional facility, hospice, or long-term care facility.

"Drug therapy management criteria" means one or more of the following:

1. Graduation from a recognized school or college of pharmacy with a doctor of pharmacy (Pharm.D.) degree;
2. Certification by the Board of Pharmaceutical Specialties (BPS);
3. Certification by the Commission for Certification in Geriatric Pharmacy (CCGP);
4. Successful completion of a National Institute for Standards in Pharmacist Credentialing (NISPC) disease state management examination and credentialing by the NISPC;
5. Successful completion of a pharmacy residency program accredited by the American Society of Health-System Pharmacists (ASHP); or
6. Approval by the board of pharmacy.

"Hospital clinic" means an outpatient care clinic operated and affiliated with a hospital and under the direct authority of the hospital's P&T committee.

"Hospital pharmacist" means an Iowa-licensed pharmacist who meets the requirements for participating in a hospital practice protocol as determined by the hospital's P&T committee.

"Hospital practice protocol" means a written plan, policy, procedure, or agreement that authorizes drug therapy management between hospital pharmacists and physicians within a hospital and the hospital's clinics as developed and determined by the hospital's P&T committee. Such a protocol may apply to all pharmacists and physicians at a hospital or the hospital's clinics or only to those pharmacists and physicians who are specifically recognized. A hospital practice protocol shall comply with the requirements of subrule 8.34(3).

"IBM" means the Iowa board of medicine.

"P&T committee" means a committee of the hospital composed of physicians, pharmacists, and other health professionals that evaluates the clinical use of drugs within the hospital, develops policies for managing drug use and administration in the hospital, and manages the hospital drug formulary system.

"Physician" means a person who is currently licensed in Iowa to practice medicine and surgery, osteopathic medicine and surgery, or osteopathy. A physician who executes a written protocol with an authorized pharmacist shall supervise the pharmacist's activities involved in the overall management of patients receiving medications or disease management services under the protocol. The physician may delegate only drug therapies that are in areas common to the physician's practice.

"Therapeutic interchange" means an authorized exchange of therapeutic alternate drug products in accordance with a previously established and approved written protocol.

8.34(2) *Community practice protocol.*

a. An authorized pharmacist shall engage in collaborative drug therapy management with a physician only under a written protocol that has been identified by topic and has been submitted to the board or a committee authorized by the board. A protocol executed after July 1, 2008, will no longer

be required to be submitted to the board; however, written protocols executed or renewed after July 1, 2008, shall be made available upon request of the board or the IBM.

b. The community practice protocol shall include:

(1) The name, signature, date, and contact information for each authorized pharmacist who is a party to the protocol and is eligible to manage the drug therapy of a patient. If more than one authorized pharmacist is a party to the agreement, the pharmacists shall work for a single licensed pharmacy and a principal authorized pharmacist shall be designated in the protocol.

(2) The name, signature, date, and contact information for each physician who may prescribe drugs and is responsible for supervising a patient's drug therapy management. The physician who initiates a protocol shall be considered the main caregiver for the patient respective to that protocol and shall be noted in the protocol as the principal physician.

(3) The name and contact information of the principal physician and the principal authorized pharmacist who are responsible for development, training, administration, and quality assurance of the protocol.

(4) A detailed written protocol pursuant to which the authorized pharmacist will base drug therapy management decisions for patients. The protocol shall authorize one or more of the following:

1. Prescription drug orders. The protocol may authorize therapeutic interchange or modification of drug dosages based on symptoms or laboratory or physical findings defined in the protocol. The protocol shall include information specific to the dosage, frequency, duration, and route of administration of the drug authorized by the patient's physician. The protocol shall not authorize the pharmacist to change a Schedule II drug or to initiate a drug not included in the established protocol.

2. Laboratory tests. The protocol may authorize the pharmacist to obtain or to conduct specific laboratory tests as long as the tests relate directly to the drug therapy management.

3. Physical findings. The protocol may authorize the pharmacist to check certain physical findings, e.g., vital signs, oximetry, or peak flows, that enable the pharmacist to assess and adjust the drug therapy, detect adverse drug reactions, or determine if the patient should be referred back to the patient's physician for follow-up.

4. Patient activities. The protocol may authorize the pharmacist to monitor specific patient activities.

(5) Procedures for securing the patient's written consent. If the patient's consent is not secured by the physician, the authorized pharmacist shall secure such and notify the patient's physician within 24 hours.

(6) Circumstances that shall cause the authorized pharmacist to initiate communication with the physician including but not limited to the need for new prescription orders and reports of the patient's therapeutic response or adverse reaction.

(7) A detailed statement identifying the specific drugs, laboratory tests, and physical findings upon which the authorized pharmacist shall base drug therapy management decisions.

(8) A provision for the collaborative drug therapy management protocol to be reviewed, updated, and reexecuted or discontinued at least every two years.

(9) A description of the method the pharmacist shall use to document the pharmacist's decisions or recommendations for the physician.

(10) A description of the types of reports the authorized pharmacist is to provide to the physician and the schedule by which the pharmacist is to submit these reports. The schedule shall include a time frame within which a pharmacist shall report any adverse reaction to the physician.

(11) A statement of the medication categories and the type of initiation and modification of drug therapy that the physician authorizes the pharmacist to perform.

(12) A description of the procedures or plan that the pharmacist shall follow if the pharmacist modifies a drug therapy.

(13) Procedures for record keeping, record sharing, and long-term record storage.

(14) Procedures to follow in emergency situations.

(15) A statement that prohibits the authorized pharmacist from delegating drug therapy management to anyone other than another authorized pharmacist who has signed the applicable protocol.

(16) A statement that prohibits a physician from delegating collaborative drug therapy management to any unlicensed or licensed person other than another physician or an authorized pharmacist.

(17) A description of the mechanism for the pharmacist and the physician to communicate with each other and for documentation by the pharmacist of the implementation of collaborative drug therapy.

c. Collaborative drug therapy management is valid only when initiated by a written protocol executed by at least one authorized pharmacist and at least one physician.

d. The collaborative drug therapy protocol must be filed with the board, kept on file in the pharmacy, and be made available upon request of the board or the IBM. After July 1, 2008, protocols shall no longer be filed with the board but shall be maintained in the pharmacy and made available to the board and the IBM upon request.

e. A physician may terminate or amend the collaborative drug therapy management protocol with an authorized pharmacist if the physician notifies, in writing, the pharmacist and the board. Notification shall include the name of the authorized pharmacist, the desired change, and the proposed effective date of the change. After July 1, 2008, the physician shall no longer be required to notify the board of changes in a protocol but the written notification shall be maintained in the pharmacy and made available upon request of the board or the IBM.

f. The physician or pharmacist who initiates a protocol with a patient is responsible for securing a patient's written consent to participate in drug therapy management and for transmitting a copy of the consent to the other party within 24 hours. The consent shall indicate which protocol is involved. Any variation in the protocol for a specific patient shall be communicated to the other party at the time of securing the patient's consent. The patient's physician shall maintain the patient consent in the patient's medical record.

8.34(3) *Hospital practice protocol.*

a. A hospital's P&T committee shall determine the scope and extent of collaborative drug therapy management practices that may be conducted by the hospital's pharmacists.

b. Collaborative drug therapy management within a hospital setting or the hospital's clinic setting is valid only when approved by the hospital's P&T committee.

c. The hospital practice protocol shall include:

(1) The names or groups of pharmacists and physicians who are authorized by the P&T committee to participate in collaborative drug therapy management.

(2) A plan for development, training, administration, and quality assurance of the protocol.

(3) A detailed written protocol pursuant to which the hospital pharmacist shall base drug therapy management decisions for patients. The protocol shall authorize one or more of the following:

1. Medication orders and prescription drug orders. The protocol may authorize therapeutic interchange or modification of drug dosages based on symptoms or laboratory or physical findings defined in the protocol. The protocol shall include information specific to the dosage, frequency, duration, and route of administration of the drug authorized by the physician. The protocol shall not authorize the hospital pharmacist to change a Schedule II drug or to initiate a drug not included in the established protocol.

2. Laboratory tests. The protocol may authorize the hospital pharmacist to obtain or to conduct specific laboratory tests as long as the tests relate directly to the drug therapy management.

3. Physical findings. The protocol may authorize the hospital pharmacist to check certain physical findings, e.g., vital signs, oximetry, or peak flows, that enable the pharmacist to assess and adjust the drug therapy, detect adverse drug reactions, or determine if the patient should be referred back to the physician for follow-up.

(4) Circumstances that shall cause the hospital pharmacist to initiate communication with the patient's physician including but not limited to the need for new medication orders and prescription drug orders and reports of a patient's therapeutic response or adverse reaction.

(5) A statement of the medication categories and the type of initiation and modification of drug therapy that the P&T committee authorizes the hospital pharmacist to perform.

(6) A description of the procedures or plan that the hospital pharmacist shall follow if the hospital pharmacist modifies a drug therapy.

(7) A description of the mechanism for the hospital pharmacist and the patient's physician to communicate and for the hospital pharmacist to document implementation of the collaborative drug therapy.

657—8.35(155A) Pharmacy license. A pharmacy license issued by the board is required for all sites where prescription drugs are offered for sale or dispensed under the supervision of a pharmacist. A pharmacy license issued by the board is also required for all sites where drug information or other cognitive pharmacy services, including but not limited to drug use review and patient counseling, are provided by a pharmacist. The board may issue any of the following types of pharmacy licenses: a general pharmacy license, a hospital pharmacy license, a special or limited use pharmacy license, or a nonresident pharmacy license. Nonresident pharmacy license applicants shall comply with board rules regarding nonresident pharmacy practice except when specific exemptions have been granted. Applicants for general or hospital pharmacy practice shall comply with board rules regarding general or hospital pharmacy practice except when specific exemptions have been granted. Any pharmacy located within Iowa that dispenses controlled substances must also register pursuant to 657—Chapter 10.

8.35(1) *Exemptions.* Applicants who are granted exemptions shall be issued a "general pharmacy license with exemption," a "hospital pharmacy license with exemption," a "nonresident pharmacy license with exemption," or a "limited use pharmacy license with exemption" and shall comply with the provisions set forth by that exemption. A written petition for exemption from certain licensure requirements shall be submitted pursuant to the procedures and requirements of 657—Chapter 34 and will be determined on a case-by-case basis.

8.35(2) *Limited use pharmacy license.* Limited use pharmacy license may be issued for nuclear pharmacy practice, correctional facility pharmacy practice, and veterinary pharmacy practice. Applications for limited use pharmacy license for these and other limited use practice settings shall be determined on a case-by-case basis.

8.35(3) *Application form.* Application for licensure and license renewal shall be on forms provided by the board. The application for a pharmacy license shall require an indication of the pharmacy ownership classification. If the owner is a sole proprietorship (100 percent ownership), the name and address of the owner shall be indicated. If the owner is a partnership or limited partnership, the names and addresses of all partners shall be listed or attached. If the owner is a corporation, the names and addresses of the officers and directors of the corporation shall be listed or attached. Any other pharmacy ownership classification shall be further identified and explained on the application. The application form shall require the name, signature, and license number of the pharmacist in charge. The names and license numbers of all pharmacists engaged in practice in the pharmacy, the names and registration numbers of all pharmacy technicians and pharmacy support persons working in the pharmacy, and the average number of hours worked by each pharmacist, pharmacy technician, and pharmacy support person shall be listed or attached. Additional information may be required of specific types of pharmacy license applicants. The application shall be signed by the pharmacy owner or the owner's, partnership's, or corporation's authorized representative.

8.35(4) *License expiration and renewal.* General pharmacy licenses, hospital pharmacy licenses, special or limited use pharmacy licenses, and nonresident pharmacy licenses shall be renewed before January 1 of each year. The fee for a new or renewal license shall be $150.

a. Late payment penalty. Failure to renew the pharmacy license before January 1 following expiration shall require payment of the renewal fee and a penalty fee of $150. Failure to renew the license before February 1 following expiration shall require payment of the renewal fee and a penalty fee of $250. Failure to renew the license before March 1 following expiration shall require payment of the renewal fee and a penalty fee of $350. Failure to renew the license before April 1 following expiration shall require payment of the renewal fee and a penalty fee of $450 and may require an appearance before the board. In no event shall the combined renewal fee and penalty fee for late renewal of a pharmacy license exceed $600.

b. Delinquent license. If a license is not renewed before its expiration date, the license is delinquent and the licensee may not operate or provide pharmacy services to patients in the state of Iowa

until the licensee renews the delinquent license. A pharmacy that continues to operate in Iowa without a current license may be subject to disciplinary sanctions pursuant to the provisions of 657—subrule 36.1(4).

8.35(5) *Inspection of new pharmacy location.* If the new pharmacy location within Iowa was not a licensed pharmacy immediately prior to the proposed opening of the new pharmacy, the pharmacy location shall require an on-site inspection by a pharmacy board inspector prior to the issuance of the pharmacy license. The purpose of the inspection is to determine compliance with requirements pertaining to space, library, equipment, security, temperature control, and drug storage safeguards. Inspection may be scheduled anytime following submission of necessary license and registration applications and prior to opening for business as a pharmacy. Prescription drugs, including controlled substances, may not be delivered to a new pharmacy location prior to satisfactory completion of the opening inspection.

8.35(6) *Pharmacy license changes.* When a pharmacy changes its name, location, ownership, or pharmacist in charge, a new pharmacy license application with a license fee as provided in subrule 8.35(4) shall be submitted to the board office. Upon receipt of the fee and properly completed application, the board will issue a new pharmacy license certificate. The old license certificate shall be returned to the board office within ten days of the change of name, location, ownership, or pharmacist in charge.

a. Location. A change of pharmacy location in Iowa shall require an on-site inspection of the new location as provided in subrule 8.35(5) if the new location was not a licensed pharmacy immediately prior to the relocation.

b. Ownership. A change of ownership of a currently licensed Iowa pharmacy, or a change of pharmacy location to another existing Iowa pharmacy location, shall not require on-site inspection pursuant to subrule 8.35(5). A new pharmacy license is required as provided in this subrule. A change of ownership effectively consists of a closing pharmacy, which is subject to the requirements for a closing pharmacy, and of a new pharmacy, which is subject to the requirements of a new pharmacy, with the possible exception of the on-site inspection as provided by this paragraph. In those cases in which the pharmacy is owned by a corporation, the sale or transfer of all stock of the corporation does not constitute a change of ownership provided the corporation that owns the pharmacy continues to exist and continues to own the pharmacy following the stock sale or transfer.

c. Pharmacist in charge. A change of pharmacist in charge shall require completion and submission of the application and fee for new pharmacy license.

(1) If a permanent pharmacist in charge has not been identified by the time of the vacancy, a temporary pharmacist in charge shall be identified. Written notification identifying the temporary pharmacist in charge, signed by the pharmacy owner or corporate officer and the temporary pharmacist in charge, shall be submitted to the board within 10 days following the vacancy.

(2) Within 90 days following the vacancy, a permanent pharmacist in charge shall be identified, and an application for pharmacy license, including the license fee as provided in subrule 8.35(4), shall be submitted to the board office.

8.35(7) *Closing pharmacy.* A closing pharmacy shall ensure that all patient and prescription records are transferred to another pharmacy that is held to the same standards of confidentiality as the closing pharmacy and that agrees to act as custodian of the records for the appropriate retention period for each record type as required by federal or state laws, rules, or regulations. A pharmacy shall not execute a sale or closing of a pharmacy unless there exists an adequate period of time prior to the pharmacy closing for delivery of the notifications to the pharmacist in charge, the board, the Drug Enforcement Administration (DEA), and pharmacy patients as required by this subrule. However, the provisions of this subrule regarding prior notifications to the board, the DEA, and patients shall not apply in the case of a board-approved emergency or unforeseeable closure, including but not limited to emergency board action, foreclosure, fire, or natural disaster.

a. Pharmacist in charge notification. At least 40 days prior to the effective date of the sale of a pharmacy, the pharmacist in charge of the closing pharmacy, if that individual is not an owner of the closing pharmacy, shall be notified of the proposed sale. The owner of the closing pharmacy may direct the pharmacist in charge to maintain information regarding the pending closure of the pharmacy confidential until public notifications are required 30 days prior to the pharmacy closing. The pharmacist

in charge of the closing pharmacy shall provide input and direction to the pharmacy owner regarding the responsibilities of the closing pharmacy, including the notifications, deadlines, and time lines established by this subrule. The pharmacist in charge of the closing pharmacy shall prepare patient notifications pursuant to paragraph 8.35(7)*"d."* At least 30 days prior to the effective date of the sale of a pharmacy, the pharmacist in charge of the purchasing or receiving pharmacy, if that individual is not an owner of the pharmacy, shall be notified of the pending transaction.

b. Board and DEA notifications. At least 30 days prior to the closing of a pharmacy, including a closing by sale of a pharmacy, a written notice shall be sent to the board and to the Drug Enforcement Administration (DEA) notifying those agencies of the intent to discontinue business or to sell the pharmacy and including the anticipated date of closing. These prior notifications shall include the name, address, DEA registration number, Iowa pharmacy license number, and Iowa controlled substances Act (CSA) registration number of the closing pharmacy and of the pharmacy to which prescription drugs will be transferred. Notifications shall also include the name, address, DEA registration number, Iowa pharmacy license number, and CSA registration number of the location at which prescription files, patient profiles, and controlled substance receipt and disbursement records will be maintained.

c. Terms of sale or purchase. If the closing is due to the sale of the pharmacy, a copy of the sale or purchase agreement, not including information regarding the monetary terms of the transaction, shall be submitted to the board upon the request of the board. The agreement shall include a written assurance from the closing pharmacy to the purchasing pharmacy that the closing pharmacy has given or will be giving notice to its patients as required by this subrule.

d. Patient notification. At least 30 days prior to closing, a closing pharmacy shall make a reasonable effort to notify all patients who had a prescription filled by the closing pharmacy within the last 18 months that the pharmacy intends to close, including the anticipated closing date.

(1) Written notification shall identify the pharmacy that will be receiving the patient's prescriptions and records. The notification shall advise patients that if they have any questions regarding their prescriptions and records that they may contact the closing pharmacy. If the closing pharmacy receives no contact from the patient within the 30-day notification period prior to the pharmacy closing, all patient information will be transferred to the receiving pharmacy. The notification shall also advise patients that after the date of closing patients may contact the pharmacy to which the prescriptions and records have been transferred.

(2) Written notification shall be delivered to each patient at the patient's last address on file with the closing pharmacy by direct mail or personal delivery and also by public notice. Public notice refers to the display, in a location and manner clearly visible to patients, of signs in pharmacy pickup locations including drive-through prescription pickup lanes, on pharmacy or retail store entry and exit doors, or at pharmacy prescription counters. In addition, notice may be posted on the pharmacy's Web site, displayed on a marquee or electronic sign, communicated via automated message on the pharmacy's telephone system, or published in one or more local newspapers or area shopper publications.

e. Patient communication by receiving pharmacy. A pharmacy receiving the patient records of another pharmacy shall not contact the patients of the closing pharmacy until after the transfer of those patient records from the closing pharmacy to the receiving pharmacy and after the closure of the closing pharmacy.

f. Prescription drug inventory. A complete inventory of all prescription drugs being transferred shall be taken as of the close of business. The inventory shall serve as the ending inventory for the closing pharmacy as well as a record of additional or starting inventory for the pharmacy to which the drugs are transferred. A copy of the inventory shall be included in the records of each licensee.

(1) DEA Form 222 is required for transfer of Schedule II controlled substances.

(2) The inventory of controlled substances shall be completed pursuant to the requirements in 657—10.35(124,155A).

(3) The inventory of all noncontrolled prescription drugs may be estimated.

(4) The inventory shall include the name, strength, dosage form, and quantity of all prescription drugs transferred.

(5) Controlled substances requiring destruction or other disposal shall be transferred in the same manner as all other drugs. The new owner is responsible for the disposal of these substances as provided in rule 657—10.18(124).

g. Surrender of certificates and forms. The pharmacy license certificate and CSA registration certificate of the closing or selling pharmacy shall be returned to the board office within ten days of closing or sale. The DEA registration certificate and all unused DEA Forms 222 shall be returned to the DEA within ten days of closing. All authorizations to utilize the DEA's online controlled substances ordering system (CSOS) and all digital certificates issued for the purpose of ordering controlled substances for the closing pharmacy shall be canceled or revoked within ten days of closing.

h. Signs at closed pharmacy location. A location that no longer houses a licensed pharmacy shall not display any sign, placard, or other notification, visible to the public, which identifies the location as a pharmacy. A sign or other public notification that cannot feasibly be removed shall be covered so as to conceal the identification as a pharmacy. Nothing in this paragraph shall prohibit the display of a public notice to patients, as required in paragraph 8.35(7)*"d,"* for a reasonable period not to exceed six months following the pharmacy closing.

8.35(8) *Failure to complete licensure.* An application for a pharmacy license, including an application for registration pursuant to 657—Chapter 10, if applicable, will become null and void if the applicant fails to complete the licensure process within six months of receipt by the board of the required applications. The licensure process shall be complete upon the pharmacy's opening for business at the licensed location following an inspection rated as satisfactory by an agent of the board if such an inspection is required pursuant to this rule. When an applicant fails to timely complete the licensure process, fees submitted with applications will not be transferred or refunded.

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CHAPTER 10
CONTROLLED SUBSTANCES
[Prior to 2/10/88, see Pharmacy Examiners[620] Ch 8]

657—10.1(124) Who shall register. Any person or business located in Iowa that manufactures, distributes, dispenses, prescribes, imports or exports, conducts research or instructional activities, or conducts chemical analysis with controlled substances in the state of Iowa, or that proposes to engage in such activities with controlled substances in the state, shall obtain and maintain a registration issued by the board unless exempt from registration pursuant to rule 657—10.6(124). A person or business required to be registered shall not engage in any activity for which registration is required until the application for registration is granted and the board has issued a certificate of registration to such person or business.

Manufacturers, distributors, reverse distributors, importers and exporters, individual practitioners (M.D., D.O., D.D.S., D.V.M., D.P.M., O.D., P.A., resident physician, advanced registered nurse practitioner), pharmacies, hospitals and animal shelters, care facilities, researchers and dog trainers, analytical laboratories, and teaching institutions shall register on forms provided by the board office. To be eligible to register, individual practitioners must hold a current, active license in good standing, issued by the appropriate Iowa professional licensing board, to practice their profession in Iowa.

657—10.2(124) Application forms. Application forms may be obtained from the Board of Pharmacy, 400 S.W. Eighth Street, Suite E, Des Moines, Iowa 50309-4688. Forms are also available on the board's Web site, www.state.ia.us/ibpe. Registration renewal forms will be mailed to each registrant approximately 60 days before the expiration date of the registration. A registrant who has not received a renewal form 45 days before the expiration date of the registration is responsible for contacting the board to request an application.

10.2(1) *Signature requirements.* Each application, attachment, or other document filed as part of an application shall be signed by the applicant as follows:

a. If the applicant is an individual practitioner, the practitioner shall sign the application and supporting documents.

b. If the applicant is a business, the application and supporting documents shall be signed by the person ultimately responsible for the security and maintenance of controlled substances at the registered location.

10.2(2) *Submission of multiple applications.* Any person or business required to obtain more than one registration may submit all applications in one package. Each application shall be complete and shall not refer to any accompanying application or any attachment to an accompanying application for required information.

657—10.3(124) Registration and renewal. For each registration or timely renewal of a registration to manufacture, distribute, dispense, prescribe, import or export, conduct research or instructional activities, or conduct chemical analysis with controlled substances listed in Schedules I through V of Iowa Code chapter 124, registrants shall pay a biennial fee of $100.

10.3(1) *Time and method of payment.* Registration and renewal fees shall be paid at the time the application for registration or renewal is submitted. Payment should be made in the form of a personal, certified, or cashier's check or a money order made payable to the Iowa Board of Pharmacy. Payments made in the form of foreign currency or third-party endorsed checks will not be accepted.

10.3(2) *Late renewal.* Any registered person or business may apply, on forms provided by the board office, for registration renewal not more than 60 days prior to the expiration of the registration. Failure to renew a registration prior to the first day of the month following expiration shall require payment of the renewal fee and a penalty fee of $100. Payment shall be made as specified in subrule 10.3(1).

657—10.4(124) Exemptions—registration fee. The registration fee is waived for federal, state, and local law enforcement agencies and for the following federal and state institutions: hospitals, health care

or teaching institutions, and analytical laboratories authorized to possess, manufacture, distribute, and dispense controlled substances in the course of official duties.

10.4(1) *Law enforcement officials.* In order to enable law enforcement agency laboratories to obtain and transfer controlled substances for use as standards in chemical analysis, such laboratories shall maintain a registration to conduct chemical analysis. Such laboratories shall be exempt from payment of a fee for registration.

10.4(2) *Registration and duties not exempt.* Exemption from payment of a registration or registration renewal fee as provided in this rule does not relieve the agency or institution of registration or of any other requirements or duties prescribed by law.

657—10.5(124) Separate registration for independent activities; coincident activities. The following activities are deemed to be independent of each other and shall require separate registration. Any person or business engaged in more than one of these activities shall be required to separately register for each independent activity, provided, however, that registration in an independent activity shall authorize the registrant to engage in activities identified coincident with that independent activity.

10.5(1) *Manufacturing controlled substances.* A person or business registered to manufacture controlled substances in Schedules I through V may distribute any substances for which registration to manufacture was issued. A person or business registered to manufacture controlled substances in Schedules II through V may conduct chemical analysis and preclinical research, including quality control analysis, with any substances listed in those schedules for which the person or business is registered to manufacture.

10.5(2) *Distributing controlled substances.* This independent activity includes the delivery, other than by administering or dispensing, of controlled substances listed in Schedules I through V. No coincident activities are authorized.

10.5(3) *Dispensing or instructing with controlled substances.* This independent activity includes, but is not limited to, prescribing by individual practitioners, dispensing by pharmacies and hospitals, and conducting instructional activities with controlled substances listed in Schedules II through V. A person or business registered for this independent activity may conduct research and instructional activities with those substances for which the person or business is registered to the extent authorized under state law.

10.5(4) *Conducting research with controlled substances listed in Schedule I.* A researcher may manufacture or import the substances for which registration was issued provided that such manufacture or import is permitted under the federal Drug Enforcement Administration (DEA) registration. A researcher may distribute the substances for which registration was issued to persons or businesses registered or authorized to conduct research with that class of substances or registered or authorized to conduct chemical analysis with controlled substances.

10.5(5) *Conducting research with controlled substances listed in Schedules II through V.* A researcher may conduct chemical analysis with controlled substances in those schedules for which registration was issued, may manufacture such substances if and to the extent such manufacture is permitted under the federal DEA registration, and may import such substances for research purposes. A researcher may distribute controlled substances in those schedules for which registration was issued to persons registered or authorized to conduct chemical analysis, instructional activities, or research with such substances, and to persons exempt from registration pursuant to Iowa Code subsection 124.302(3), and may conduct instructional activities with controlled substances.

10.5(6) *Conducting chemical analysis with controlled substances.* A person or business registered to conduct chemical analysis with controlled substances listed in Schedules I through V may manufacture and import controlled substances for analytical or instructional activities; may distribute such substances to persons registered or authorized to conduct chemical analysis, instructional activities, or research with such substances and to persons exempt from registration pursuant to Iowa Code subsection 124.302(3); may export such substances to persons in other countries performing chemical analysis or enforcing laws relating to controlled substances or drugs in those countries; and may conduct instructional activities with controlled substances.

10.5(7) *Importing or exporting controlled substances.* A person or business registered to import controlled substances listed in Schedules I through V may distribute any substances for which such registration was issued.

657—10.6(124) Separate registrations for separate locations; exemption from registration. A separate registration is required for each principal place of business or professional practice location where controlled substances are manufactured, distributed, imported, exported, or dispensed unless the person or business is exempt from registration pursuant to Iowa Code subsection 124.302(3) or this rule.

10.6(1) *Warehouse.* A warehouse where controlled substances are stored by or on behalf of a registered person or business shall be exempt from registration except as follows:

a. Registration of the warehouse shall be required if such controlled substances are distributed directly from that warehouse to registered locations other than the registered location from which the substances were delivered to the warehouse.

b. Registration of the warehouse shall be required if such controlled substances are distributed directly from that warehouse to persons exempt from registration pursuant to Iowa Code subsection 124.302(3).

10.6(2) *Sales office.* An office used by agents of a registrant where sales of controlled substances are solicited, made, or supervised shall be exempt from registration. Such office shall not contain controlled substances, except substances used for display purposes or for lawful distribution as samples, and shall not serve as a distribution point for filling sales orders.

10.6(3) *Prescriber's office.* An office used by a prescriber who is registered at another location and where controlled substances are prescribed but where no supplies of controlled substances are maintained shall be exempt from registration. However, a prescriber who practices at more than one office location where controlled substances are administered or otherwise dispensed as a regular part of the prescriber's practice shall register at each location wherein the prescriber maintains supplies of controlled substances.

10.6(4) *Prescriber in hospital.* A prescriber who is registered at another location and who treats patients and may order the administration of controlled substances in a hospital other than the prescriber's registered practice location shall not be required to obtain a separate registration for the hospital.

10.6(5) *Affiliated interns, residents, or foreign physicians.* An individual practitioner who is an intern, resident, or foreign physician may dispense and prescribe controlled substances under the registration of the hospital or other institution which is registered and by whom the registrant is employed provided that:

a. The hospital or other institution by which the individual practitioner is employed has determined that the practitioner is permitted to dispense or prescribe drugs by the appropriate licensing board;

b. Such individual practitioner is acting only in the scope of employment in the hospital or institution;

c. The hospital or other institution authorizes the intern, resident, or foreign physician to dispense or prescribe under the hospital registration and designates a specific internal code number, letters, or combination thereof which shall be appended to the institution's DEA registration number, preceded by a hyphen (e.g., AP1234567-10 or AP1234567-12); and

d. The hospital or institution maintains a current list of internal code numbers identifying the corresponding individual practitioner, available for the purpose of verifying the authority of the prescribing individual practitioner.

657—10.7 to **10.9** Reserved.

657—10.10(124,147,155A) Inspection. The board may inspect, or cause to be inspected, the establishment of an applicant or registrant. The board shall review the application for registration and other information regarding an applicant or registrant in order to determine whether the applicant or registrant has met the applicable standards of Iowa Code chapter 124 and these rules.

657—10.11(124) Modification or termination of registration. A registered individual or business may apply to modify a current registration as provided by this rule.

10.11(1) *Change of substances authorized.* Any registrant may apply to modify the substances authorized by the registration by submitting a written request to the board. The request shall include the registrant's name, address, telephone number, registration number, and the substances or schedules to be added to or removed from the registration and shall be signed by the same person who signed the most recent application for registration or registration renewal. No fee shall be required for the modification.

10.11(2) *Change of address of registered location.*

a. Individual practitioner, researcher, analytical laboratory, or teaching institution. An entity registered under these classifications may apply to change the address of the registered location by submitting a written request to the board. The request shall include the registrant's name, current address, new address, telephone number, effective date of the address change, and registration number, and shall be signed by the registered individual practitioner or the same person who signed the most recent application for registration or registration renewal. No fee shall be required for the modification.

b. Pharmacy, hospital, care facility, manufacturer, distributor, importer, or exporter. An entity registered under these classifications shall apply to change the address of the registered location by submitting a completed application for registration. Applications may be obtained and shall be submitted as provided in rule 657—10.2(124). The registration fee as provided in rule 657—10.3(124) shall accompany each completed application.

10.11(3) *Change of registrant's name.*

a. Individual practitioner, researcher, analytical laboratory, or teaching institution. An entity registered under these classifications may apply to change the registrant's name by submitting a written request to the board. The request shall include the registrant's current name, the new name, address, telephone number, effective date of the name change, and registration number, and shall be signed by the registered individual practitioner or the same person who signed the most recent application for registration or registration renewal. No fee shall be required for the modification. Change of name, as used in this paragraph, refers to a change of the legal name of the registrant and does not authorize the transfer of a registration issued to an individual practitioner or researcher to another individual practitioner or researcher.

b. Pharmacy, hospital, care facility, manufacturer, distributor, importer, or exporter. An entity registered under these classifications shall apply to change the registrant name by submitting a completed application for registration. Applications may be obtained and shall be submitted as provided in rule 657—10.2(124). The registration fee as provided in rule 657—10.3(124) shall accompany each completed application.

10.11(4) *Change of ownership of registered business entity.* A change of immediate ownership of a pharmacy, hospital, care facility, manufacturer, distributor, analytical laboratory, teaching institution, importer, or exporter shall require the completion of an application for registration. Applications may be obtained and shall be submitted as provided in rule 657—10.2(124). The registration fee as provided in rule 10.3(124) shall accompany each completed application.

10.11(5) *Change of responsible individual.* Any registrant, except an individual practitioner, a researcher, a hospital, or a pharmacy, may apply to change the responsible individual authorized by the registration by submitting a written request to the board. The request shall include the registrant's name, address, telephone number, the name and title of the current responsible individual and of the new responsible individual, the effective date of the change, and the registration number, and shall be signed by the new responsible individual. No fee shall be required for the modification.

a. Individual practitioners and researchers. Responsibility under a registration issued to an individual practitioner or researcher shall remain with the named individual practitioner or researcher. The responsible individual under such registration may not be changed.

b. Pharmacies and hospitals. The responsible pharmacist may execute a power of attorney for DEA order forms to change responsibility under the registration issued to the pharmacy or hospital. The power of attorney shall include the name, address, DEA registration number, and Iowa uniform controlled substances Act (CSA) registration number of the registrant. The power of attorney shall

identify the current and new responsible individuals and shall authorize the new responsible individual to execute applications and official DEA order forms to requisition Schedule II controlled substances. The power of attorney shall be signed by both individuals, shall be witnessed by two adults, and shall be maintained by the registrant and available for inspection or copying by representatives of the board or other state or federal authorities.

10.11(6) *Termination of registration.* A registration issued to an individual shall terminate upon the death of the individual. A registration issued to an individual or business shall terminate when the registered individual or business ceases legal existence, discontinues business, or discontinues professional practice.

657—10.12(124) Denial, modification, suspension, or revocation of registration.

10.12(1) *Grounds for suspension or revocation.* The board may suspend or revoke any registration upon a finding that the registrant:

a. Has furnished false or fraudulent material information in any application filed under this chapter;

b. Has had the registrant's federal registration to manufacture, distribute, or dispense controlled substances suspended or revoked;

c. Has been convicted of a public offense under any state or federal law relating to any controlled substance. For the purpose of this rule only, a conviction shall include a plea of guilty, a forfeiture of bail or collateral deposited to secure a defendant's appearance in court which forfeiture has not been vacated, or a finding of guilt in a criminal action even though entry of the judgment or sentence has been withheld and the individual has been placed on probation;

d. Has committed such acts as would render the registrant's registration under Iowa Code section 124.303 inconsistent with the public interest as determined by that section; or

e. Has been subject to discipline by the registrant's respective professional licensing board and the discipline revokes, suspends, or modifies the registrant's authority regarding controlled substances (including, but not limited to, limiting or prohibiting the registrant from prescribing or handling controlled substances). A certified copy of the record of licensee discipline or a copy of the licensee's surrender of the professional license shall be conclusive evidence.

10.12(2) *Limited suspension or revocation.* If the board finds grounds to suspend or revoke a registration, the board may limit revocation or suspension of the registration to the particular controlled substance with respect to which the grounds for revocation or suspension exist. If the revocation or suspension is limited to a particular controlled substance or substances, the registrant shall be given a new certificate of registration for all substances not affected by revocation or suspension; no fee shall be required for the new certificate of registration. The registrant shall deliver the old certificate of registration to the board.

10.12(3) *Denial of registration or registration renewal.* If upon examination of an application for registration or registration renewal, including any other information the board has or receives regarding the applicant, the board determines that the issuance of the registration would be inconsistent with the public interest, the board shall serve upon the applicant an order to show cause why the registration should not be denied.

10.12(4) *Considerations in denial of registration.* In determining the public interest, the board shall consider all of the following factors:

a. Maintenance of effective controls against diversion of controlled substances into other than legitimate medical, scientific, or industrial channels.

b. Compliance with applicable state and local law.

c. Any convictions of the applicant under any federal and state laws relating to any controlled substance.

d. Past experience in the manufacture or distribution of controlled substances, and the existence in the applicant's establishment of effective controls against diversion.

e. Furnishing by the applicant of false or fraudulent material in any application filed under this chapter.

f. Suspension or revocation of the applicant's federal registration to manufacture, distribute, or dispense controlled substances as authorized by federal law.

g. Any other factors relevant to and consistent with the public health and safety.

10.12(5) *Order to show cause.* Before denying, modifying, suspending, or revoking a registration, the board shall serve upon the applicant or registrant an order to show cause why the registration should not be denied, modified, revoked, or suspended. The order to show cause shall contain a statement of the basis therefor and shall call upon the applicant or registrant to appear before an administrative law judge or the board at a time and place not less than 30 days after the date of service of the order. The order to show cause shall also contain a statement of the legal basis for such hearing and for the denial, revocation, or suspension of registration and a summary of the matters of fact and law asserted. If the order to show cause involves the possible denial of registration renewal, the order shall be served not later than 30 days before the expiration of the registration. Proceedings to refuse renewal of registration shall not abate the existing registration, which shall remain in effect pending the outcome of the administrative hearing unless the board issues an order of immediate suspension pursuant to subrule 10.12(9).

10.12(6) *Hearing requested.* If an applicant or registrant who has received an order to show cause desires a hearing on the matter, the applicant or registrant shall file a request for a hearing within 30 days after the date of service of the order to show cause. If a hearing is requested, the board shall hold a hearing pursuant to 657—Chapter 35 at the time and place stated in the order and without regard to any criminal prosecution or other proceeding. Unless otherwise ordered by the board, an administrative law judge employed by the department of inspections and appeals shall be assigned to preside over the case and to render a proposed decision for the board's consideration.

10.12(7) *Waiver of hearing.* If an applicant or registrant entitled to a hearing on an order to show cause fails to file a request for hearing, or if the applicant or registrant requests a hearing but fails to appear at the hearing, the applicant or registrant shall be deemed to have waived the opportunity for a hearing unless the applicant or registrant shows good cause for such failure.

10.12(8) *Final board order when hearing waived.* If an applicant or registrant entitled to a hearing waives or is deemed to have waived the opportunity for a hearing, the executive director of the board may cancel the hearing and issue, on behalf of the board, the board's final order on the order to show cause.

10.12(9) *Order of immediate suspension.* The board may suspend any registration simultaneously with the service upon the registrant of an order to show cause why such registration should not be revoked or suspended if it finds there is an imminent danger to the public health or safety that warrants such action. If the board suspends a registration simultaneously with the service of the order to show cause upon the registrant, it shall serve an order of immediate suspension containing a statement of its findings regarding the danger to public health or safety upon the registrant with the order to show cause. The suspension shall continue in effect until the conclusion of the proceedings, including judicial review thereof, under the provisions of the Iowa administrative procedure Act, unless sooner withdrawn by the board or dissolved by the order of the district court or an appellate court.

10.12(10) *Disposition of controlled substances.* If the board suspends or revokes a registration, the registrant shall promptly return the certificate of registration to the board. Also, upon service of the order of the board suspending or revoking the registration, the registrant shall deliver all affected controlled substances in the registrant's possession to the board or authorized agent of the board. Upon receiving the affected controlled substances from the registrant, the board or its authorized agent shall place all such substances under seal and retain the sealed controlled substances pending final resolution of any appeals or until a court of competent jurisdiction directs otherwise. No disposition may be made of the substances under seal until the time for taking an appeal has elapsed or until all appeals have been concluded unless a court, upon application, orders the sale of perishable substances and the deposit of proceeds of the sale with the court. Upon a revocation order's becoming final, all such controlled substances may be forfeited to the state.

10.12(11) *Notifications.* The board shall promptly notify the DEA and the Iowa department of public safety of all orders suspending or revoking registration and all forfeitures of controlled substances.

657—10.13 and **10.14** Reserved.

657—10.15(124,155A) Security requirements. All applicants and registrants shall provide effective controls and procedures to guard against theft and diversion of controlled substances. In order to determine whether a person has provided effective controls against diversion, the board shall use the security requirements set forth in these rules as standards for the physical security controls and operating procedures necessary to prevent diversion.

10.15(1) *Physical security.* Physical security controls shall be commensurate with the schedules and quantity of controlled substances in the possession of the registrant in normal business operation. A registrant shall periodically review and adjust security measures based on rescheduling of substances or changes in the quantity of substances in the possession of the registrant.

a. Controlled substances listed in Schedule I shall be stored in a securely locked, substantially constructed cabinet.

b. Controlled substances listed in Schedules II through V may be stored in a securely locked, substantially constructed cabinet. However, pharmacies and hospitals may disperse these substances throughout the stock of noncontrolled substances in a manner so as to obstruct the theft or diversion of the controlled substances.

10.15(2) *Factors in evaluating physical security systems.* In evaluating the overall security system of a registrant or applicant necessary to maintain effective controls against theft or diversion of controlled substances, the board may consider any of the following factors it deems relevant to the need for strict compliance with the requirements of this rule:

a. The type of activity conducted;

b. The type, form, and quantity of controlled substances handled;

c. The location of the premises and the relationship such location bears to security needs;

d. The type of building construction comprising the facility and the general characteristics of the building or buildings;

e. The type of vault, safe, and secure enclosures available;

f. The type of closures on vaults, safes, and secure enclosures;

g. The adequacy of key control systems or combination lock control systems;

h. The adequacy of electric detection and alarm systems, if any;

i. The adequacy of supervision over employees having access to controlled substances, to storage areas, or to manufacturing areas;

j. The extent of unsupervised public access to the facility, including the presence and characteristics of perimeter fencing, if any;

k. The procedures for handling business guests, visitors, maintenance personnel, and nonemployee service personnel;

l. The availability of local police protection or of the registrant's or applicant's security personnel; and

m. The adequacy of the registrant's or applicant's system for monitoring the receipt, manufacture, distribution, and disposition of controlled substances.

10.15(3) *Manufacturing and compounding storage areas.* Raw materials, bulk materials awaiting further processing, and finished products which are controlled substances listed in any schedule shall be stored pursuant to federal laws and regulations.

657—10.16(124) Report of theft or loss. A registrant shall report in writing, on forms provided by the board, any theft or significant loss of any controlled substance when the loss is attributable to other than inadvertent error. The report shall be submitted to the board office within two weeks of the discovery of the theft or loss. Thefts shall be reported whether or not the controlled substances are subsequently recovered or the responsible parties are identified and action is taken against them. A copy of the report shall be maintained in the files of the registrant, and the board will provide a copy of the report to the DEA. In addition to this required report, DEA requires the registrant to deliver notice, immediately

upon discovery of a theft or significant loss of controlled substances, to the nearest DEA field office via telephone, facsimile, or a brief written message explaining the circumstances.

657—10.17(124) Accountability of stock supply. An individual who administers a controlled substance from a non-patient-specific, stock supply in an institutional setting shall personally document on a separate readily retrievable record system each dose administered, wasted, or returned to the pharmacy. Such documentation shall not be delegated to another individual. Wastage documentation shall include the signature or unique electronic signature or identification of a witnessing licensed health care practitioner.

Distribution records for non-patient-specific, floor-stocked controlled substances shall bear the following information:

1. Patient's name;
2. Prescriber who ordered drug;
3. Name of drug, dosage form, and strength;
4. Time and date of administration to patient and quantity administered;
5. Signature or unique electronic signature of individual administering controlled substance;
6. Returns to the pharmacy;
7. Waste, which is required to be witnessed and cosigned by another licensed health care practitioner.

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657—10.18(124) Disposal. Any persons legally authorized to possess controlled substances in the course of their professional practice or the conduct of their business shall dispose of such drugs pursuant to the procedures and requirements of this rule. Disposal records shall be maintained in the files of the registrant.

10.18(1) *Registrant stock supply.* Pharmacy personnel, registrants, and registrant staff shall remove from current inventory and dispose of controlled substances by one of the following procedures.

a. The responsible individual shall utilize the services of a DEA-registered and Iowa-licensed disposal firm.

b. The board may authorize and instruct the registrant to dispose of the controlled substances in one of the following manners:

(1) By delivery to an agent of the board or to the board office;

(2) By destruction of the drugs in the presence of a board officer, agent, inspector, or other authorized individual; or

(3) By such other means as the board may determine to ensure that drugs do not become available to unauthorized persons.

10.18(2) *Waste.* Except as otherwise specifically provided by federal or state law or rules of the board, the unused portion of a controlled substance resulting from administration to a patient from a registrant's stock or emergency supply or resulting from drug compounding operations may be destroyed or otherwise disposed of by the registrant or a pharmacist in witness of one other licensed health care provider or a registered pharmacy technician 18 years of age or older pursuant to this subrule. A written record of the wastage shall be made and maintained by the registrant for a minimum of two years following the destruction or other disposal. The record shall include the signatures of the individual destroying or otherwise disposing of the waste controlled substance and of the witnessing licensed health care provider or registered pharmacy technician and shall identify the following:

a. The controlled substance wasted;

b. The date of destruction or other disposition;

c. The quantity or estimated quantity of the wasted controlled substance;

d. The source of the controlled substance, including identification of the patient to whom the substance was administered or the drug compounding process utilizing the controlled substance; and

e. The reason for the waste.

10.18(3) *Previously dispensed controlled substances.* Controlled substances dispensed to or for a patient and subsequently requiring destruction due to discontinuance of the drug, death of the patient, or other reasons necessitating destruction may be destroyed or otherwise disposed of by a pharmacist in witness of one other responsible adult pursuant to this subrule. All licenses and registrations issued to the pharmacy, the pharmacist, and any individual witnessing the destruction or other disposition shall not be subject to sanctions relating to controlled substances at the time of the destruction or disposition. The individuals involved in the destruction or other disposition shall not have been subject to any criminal, civil, or administrative action relating to violations of controlled substances laws, rules, or regulations within the past five years. The pharmacist in charge shall be responsible for designating pharmacists authorized to participate in the destruction or other disposition pursuant to this subrule. The authorized pharmacist shall prepare and maintain in the pharmacy a readily retrievable record of the destruction or other disposition, which shall be clearly marked to indicate the destruction or other disposition of noninventory or patient drugs. The record shall include, at a minimum, the following:

a. Source of the controlled substance (patient identifier or administering practitioner, if applicable, and date of return);

b. The name, strength, and dosage form of the substance;

c. The quantity returned and destroyed or otherwise disposed;

d. The date the substance is destroyed or otherwise disposed;

e. The signatures or other unique identification of the pharmacist and the witness.

657—10.19 and **10.20** Reserved.

657—10.21(124,126,155A) Prescription requirements. All prescriptions for controlled substances shall be dated as of, and signed on, the day issued. Controlled substances prescriptions shall be valid for six months following date of issue. A prescription for a Schedule III, IV, or V controlled substance may include authorization to refill the prescription no more than five times within the six months following date of issue. A prescription for a Schedule II controlled substance shall not be refilled.

10.21(1) *Form of prescription.* All prescriptions shall bear the full name and address of the patient; the drug name, strength, dosage form, quantity prescribed, and directions for use; and the name, address, and DEA registration number of the prescriber. All prescriptions issued by individual prescribers shall include the legibly preprinted, typed, or hand-printed name of the prescriber as well as the prescriber's written or electronic signature. When an oral order is not permitted, or when a prescriber is unable to prepare and transmit an electronic prescription in compliance with DEA requirements for electronic prescriptions, prescriptions shall be written with ink, indelible pencil, or typed print and shall be manually signed by the prescriber. If the prescriber utilizes an electronic prescription application that meets DEA requirements for electronic prescriptions, the prescriber may electronically prepare and transmit a prescription for a controlled substance to a pharmacy that utilizes a pharmacy prescription application that meets DEA requirements for electronic prescriptions. A prescriber's agent may prepare a prescription for the review, authorization, and manual or electronic signature of the prescriber but the prescribing practitioner is responsible for the accuracy, completeness, and validity of the prescription. An electronic prescription for a controlled substance shall not be transmitted to a pharmacy except by the prescriber in compliance with DEA regulations. A prescriber shall securely maintain the unique authentication credentials issued to the prescriber for utilization of the electronic prescription application and authentication of the prescriber's electronic signature. Unique authentication credentials issued to any individual shall not be shared with or disclosed to any other prescriber, agent, or individual. A corresponding liability rests upon the pharmacist who fills a prescription not prepared in the form prescribed by this rule.

10.21(2) *Verification by pharmacist.* The pharmacist shall verify the authenticity of the prescription with the individual prescriber or the prescriber's agent in each case when a written or oral prescription for a Schedule II controlled substance is presented for filling and neither the prescribing individual practitioner issuing the prescription nor the patient or patient's agent is known to the pharmacist. The pharmacist shall verify the authenticity of the prescription with the individual prescriber or the

prescriber's agent in any case when the pharmacist questions the validity of, including the legitimate medical purpose for, the prescription. The pharmacist is required to record the manner by which the prescription was verified and include the pharmacist's name or unique identifier.

10.21(3) *Intern, resident, foreign physician.* An intern, resident, or foreign physician exempt from registration pursuant to subrule 10.6(5) shall include on all prescriptions issued the hospital's registration number and the special internal code number assigned by the hospital in lieu of the prescriber's registration number required by this rule. Each prescription shall include the stamped or legibly printed name of the intern, resident, or foreign physician as well as the prescriber's signature.

10.21(4) *Valid prescriber/patient relationship.* Once the prescriber/patient relationship is broken and the prescriber is no longer available to treat the patient or to oversee the patient's use of the controlled substance, a prescription shall lose its validity. A prescriber/patient relationship shall be deemed broken when the prescriber dies, retires, or moves out of the local service area or when the prescriber's authority to prescribe is suspended, revoked, or otherwise modified to exclude authority for the schedule in which the prescribed substance is listed. The pharmacist, upon becoming aware of the situation, shall cancel the prescription and any remaining refills. However, the pharmacist shall exercise prudent judgment based upon individual circumstances to ensure that the patient is able to obtain a sufficient amount of the drug to continue treatment until the patient can reasonably obtain the service of another prescriber and a new prescription can be issued.

10.21(5) *Schedule II prescriptions.* With appropriate verification, a pharmacist may add information provided by the patient or patient's agent, such as the patient's address, to a Schedule II controlled substance prescription. A pharmacist shall never change the patient's name, the controlled substance prescribed except for generic substitution, or the name or signature of the prescriber. After consultation with the prescriber or the prescriber's agent and documentation of such consultation, a pharmacist may change or add the following information on a Schedule II controlled substance prescription:

a. The drug strength;
b. The dosage form;
c. The drug quantity;
d. The directions for use;
e. The date the prescription was issued; and
f. The prescriber's address or DEA registration number.

[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—10.22(124) Schedule II emergency prescriptions.

10.22(1) *Emergency situation defined.* For the purposes of authorizing an oral or facsimile transmission of a prescription for a Schedule II controlled substance listed in Iowa Code section 124.206, the term "emergency situation" means those situations in which the prescribing practitioner determines that all of the following apply:

a. Immediate administration of the controlled substance is necessary for proper treatment of the intended ultimate user.

b. No appropriate alternative treatment is available, including administration of a drug that is not a Schedule II controlled substance.

c. It is not reasonably possible for the prescribing practitioner to provide a manually signed written prescription to be presented to the pharmacy before the pharmacy dispenses the controlled substance or the prescribing practitioner is unable to provide a DEA-compliant electronic prescription to the pharmacy before the pharmacy dispenses the controlled substance.

10.22(2) *Requirements of emergency prescription.* In the case of an emergency situation as defined in subrule 10.22(1), a pharmacist may dispense a controlled substance listed in Schedule II pursuant to a facsimile transmission or upon receiving oral authorization of a prescribing individual practitioner provided that:

a. The quantity prescribed and dispensed is limited to the smallest available quantity to meet the needs of the patient during the emergency period. Dispensing beyond the emergency period requires

a written prescription manually signed by the prescribing individual practitioner or a DEA-compliant electronic prescription.

b. If the pharmacist does not know the prescribing individual practitioner, the pharmacist shall make a reasonable effort to determine that the authorization came from an authorized prescriber. The pharmacist shall record the manner by which the authorization was verified and include the pharmacist's name or unique identification.

c. The pharmacist shall prepare a temporary written record of the emergency prescription. The temporary written record shall consist of a hard copy of the facsimile transmission or a written record of the oral transmission authorizing the emergency dispensing. A written record is not required to consist of a handwritten record and may be a printed facsimile or a print of a computer-generated record of the prescription if the printed record includes all of the required elements for the prescription. If the emergency prescription is transmitted by the practitioner's agent, the record shall include the first and last names and title of the individual who transmitted the prescription.

d. If the emergency prescription is transmitted via facsimile transmission, the means of transmission shall not obscure or render the prescription information illegible due to security features of the paper utilized by the prescriber to prepare the written prescription, and the hard-copy record of the facsimile transmission shall not be obscured or rendered illegible due to such security features.

e. Within seven days after authorizing an emergency prescription, the prescribing individual practitioner shall cause a written prescription for the emergency quantity prescribed to be delivered to the dispensing pharmacist. In addition to conforming to the requirements of 657—10.21(124,126,155A), the prescription shall have written on its face "Authorization for Emergency Dispensing" and the date of the emergency order. The written prescription may be delivered to the pharmacist in person or by mail, but if delivered by mail it must be postmarked within the seven-day period. The written prescription shall be attached to and maintained with the temporary written record prepared pursuant to paragraph *"c."*

f. The pharmacist shall notify the board and the DEA if the prescribing individual fails to deliver a written prescription. Failure of the pharmacist to so notify the board and the DEA, or failure of the prescribing individual to deliver the required written prescription as herein required, shall void the authority conferred by this subrule.

[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 9410B**, IAB 3/9/11, effective 4/13/11; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—10.23(124) Schedule II prescriptions—partial filling. The partial filling of a prescription for a controlled substance listed in Schedule II is permitted as provided in this rule.

10.23(1) *Insufficient supply on hand.* If the pharmacist is unable to supply the full quantity called for in a prescription and makes a notation of the quantity supplied on the prescription record, a partial fill of the prescription is permitted. The remaining portion of the prescription must be filled within 72 hours of the first partial filling. If the remaining portion is not or cannot be filled within the 72-hour period, the pharmacist shall so notify the prescriber. No further quantity may be supplied beyond 72 hours without a new prescription.

10.23(2) *Long-term care or terminally ill patient.* A prescription for a Schedule II controlled substance written for a patient in a long-term care facility (LTCF) or for a patient with a medical diagnosis documenting a terminal illness may be filled in partial quantities to include individual dosage units as provided by this subrule.

a. If there is any question whether a patient may be classified as having a terminal illness, the pharmacist shall contact the practitioner prior to partially filling the prescription. Both the pharmacist and the practitioner have a corresponding responsibility to ensure that the controlled substance is for a terminally ill patient.

b. The pharmacist shall record on the prescription whether the patient is "terminally ill" or an "LTCF patient." For each partial filling, the dispensing pharmacist shall record on the back of the prescription, or on another appropriate uniformly maintained and readily retrievable record, the date of

the partial filling, the quantity dispensed, the remaining quantity authorized to be dispensed, and the identification of the dispensing pharmacist.

c. The total quantity of Schedule II controlled substances dispensed in all partial fillings shall not exceed the total quantity prescribed. Schedule II prescriptions for patients in a LTCF or patients with a medical diagnosis documenting a terminal illness shall be valid for a period not to exceed 60 days from the issue date unless sooner terminated by the discontinuance of the drug.

d. Information pertaining to current Schedule II prescriptions for patients in a LTCF or for patients with a medical diagnosis documenting a terminal illness may be maintained in a computerized system pursuant to rule 657—21.4(124,155A).

657—10.24(124) Schedule II medication order. Schedule II controlled substances may be administered or dispensed to institutionalized patients pursuant to a medication order as provided in 657—subrule 7.13(1) or rule 657—23.18(124,155A), as applicable.

657—10.25(124) Schedule II—issuing multiple prescriptions. An individual prescriber may issue multiple prescriptions authorizing the patient to receive a total of up to a 90-day supply of a Schedule II controlled substance pursuant to the provisions and limitations of this rule.

10.25(1) *Refills prohibited.* The issuance of refills for a Schedule II controlled substance is prohibited. The use of multiple prescriptions for the dispensing of Schedule II controlled substances, pursuant to this rule, ensures that the prescriptions are treated as separate dispensing authorizations and not as refills of an original prescription.

10.25(2) *Legitimate medical purpose.* Each separate prescription issued pursuant to this rule shall be issued for a legitimate medical purpose by an individual prescriber acting in the usual course of the prescriber's professional practice.

10.25(3) *Dates and instructions.* Each prescription issued pursuant to this rule shall be dated as of and manually signed by the prescriber on the day the prescription is issued. Each separate prescription, other than the first prescription if that prescription is intended to be filled immediately, shall contain written instructions indicating the earliest date on which a pharmacist may fill each prescription.

10.25(4) *Authorized fill date unalterable.* Regardless of the provisions of subrule 10.21(5), when a prescription contains instructions from the prescriber indicating that the prescription shall not be filled before a certain date, a pharmacist shall not fill the prescription before that date. The pharmacist shall not contact the prescriber for verbal authorization to fill the prescription before the fill date originally indicated by the prescriber pursuant to this rule.

10.25(5) *Number of prescriptions and authorized quantity.* An individual prescriber may issue for a patient as many separate prescriptions, to be filled sequentially pursuant to this rule, as the prescriber deems necessary to provide the patient with adequate medical care. The cumulative effect of the filling of each of these separate prescriptions shall result in the receipt by the patient of a quantity of the Schedule II controlled substance not exceeding a 90-day supply.

10.25(6) *Prescriber's discretion.* Nothing in this rule shall be construed as requiring or encouraging an individual prescriber to issue multiple prescriptions pursuant to this rule or to see the prescriber's patients only once every 90 days when prescribing Schedule II controlled substances. An individual prescriber shall determine, based on sound medical judgment and in accordance with established medical standards, how often to see patients and whether it is appropriate to issue multiple prescriptions pursuant to this rule.

[**ARC 8172B**, IAB 9/23/09, effective 10/28/09]

657—10.26 Reserved.

657—10.27(124,155A) Facsimile transmission of a controlled substance prescription. With the exception of an authorization for emergency dispensing as provided in rule 657—10.22(124), a prescription for a controlled substance may be transmitted via facsimile from a prescriber to a pharmacy as provided in rule 657—21.9(124,155A).

10.27(1) *Schedule II prescription.* A prescription for a Schedule II controlled substance may be transmitted via facsimile to the pharmacy only as provided in rules 657—21.12(124,155A) to 657—21.16(124,155A).

10.27(2) *Schedule III, IV, or V prescription.* A prescription for a Schedule III, IV, or V controlled substance may be transmitted via facsimile to the pharmacy only as provided in rule 657—21.9(124,155A).

[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—10.28(124,155A) Schedule III, IV, or V refills. No prescription for a controlled substance listed in Schedule III, IV, or V shall be filled or refilled more than six months after the date on which it was issued nor be refilled more than five times.

10.28(1) *Record.* Each filling and refilling of a prescription shall be entered on the prescription or on another uniformly maintained and readily retrievable record.

a. The following information shall be retrievable by the prescription number: the name and dosage form of the controlled substance, the date filled or refilled, the quantity dispensed, the unique identification of the dispensing pharmacist for each refill, and the total number of refills authorized for that prescription.

b. If the pharmacist merely initials or affixes the pharmacist's unique identifier and dates the back of the prescription, it shall be deemed that the full face amount of the prescription has been dispensed.

10.28(2) *Oral refill authorization.* The prescribing practitioner may authorize additional refills of Schedule III, IV, or V controlled substances on the original prescription through an oral refill authorization transmitted to the pharmacist provided the following conditions are met:

a. The total quantity authorized, including the amount of the original prescription, does not exceed five refills nor extend beyond six months from the date of issuance of the original prescription.

b. The pharmacist who obtains the oral authorization records from the prescriber who issued the original prescription records on or with the original prescription the date, the quantity of each refill, the number of additional refills authorized, and the pharmacist's unique identification.

c. The quantity of each additional refill is equal to or less than the quantity authorized for the initial filling of the original prescription.

d. The prescribing practitioner must execute a new and separate prescription for any additional quantities beyond the five-refill, six-month limitation.

10.28(3) *Automated data processing record system.* An automated data processing record system may be used for the storage and retrieval of Schedule III, IV, and V controlled substance prescription fill and refill information subject to the conditions and requirements of rules 657—21.4(124,155A) and 657—21.5(124,155A).

657—10.29(124,155A) Schedule III, IV, or V partial fills. The partial filling of a prescription for a controlled substance listed in Schedule III, IV, or V is permissible provided that each partial fill is recorded in the same manner as a refill. The total quantity dispensed in all partial fills shall not exceed the total quantity prescribed. No dispensing shall occur later than six months after the date on which the prescription was issued.

657—10.30(124,155A) Schedule III, IV, and V medication order. A Schedule III, IV, or V controlled substance may be administered or dispensed to institutionalized patients pursuant to a medication order as provided in 657—subrule 7.13(1) or rule 657—23.9(124,155A), as applicable.

657—10.31(124,155A) Dispensing Schedule V controlled substances without a prescription. A controlled substance listed in Schedule V, which substance is not a prescription drug as determined under the federal Food, Drug and Cosmetic Act, and excepting products containing ephedrine, pseudoephedrine, or phenylpropanolamine, may be dispensed or administered without a prescription by a pharmacist to a purchaser at retail pursuant to the conditions of this rule.

10.31(1) *Who may dispense.* Dispensing shall be by a licensed Iowa pharmacist or by a registered pharmacist-intern under the direct supervision of a pharmacist preceptor. This subrule does not prohibit,

after the pharmacist has fulfilled the professional and legal responsibilities set forth in this rule and has authorized the dispensing of the substance, the completion of the actual cash or credit transaction or the delivery of the substance by a nonpharmacist.

10.31(2) *Frequency and quantity.* Dispensing at retail to the same purchaser in any 48-hour period shall be limited to no more than one of the following quantities of a Schedule V controlled substance:

a. 240 cc (8 ounces) of any controlled substance containing opium.

b. 120 cc (4 ounces) of any other controlled substance.

c. 48 dosage units of any controlled substance containing opium.

d. 24 dosage units of any other controlled substance.

10.31(3) *Age of purchaser.* The purchaser shall be at least 18 years of age.

10.31(4) *Identification.* The pharmacist shall require every purchaser under this rule not known by the pharmacist to present a government-issued photo identification, including proof of age when appropriate.

10.31(5) *Record.* A bound record book (i.e., with pages sewn or glued to the spine) for dispensing of Schedule V controlled substances pursuant to this rule shall be maintained by the pharmacist. The book shall contain the name and address of each purchaser, the name and quantity of controlled substance purchased, the date of each purchase, and the name or unique identification of the pharmacist or pharmacist-intern who approved the dispensing of the substance to the purchaser.

10.31(6) *Prescription not required under other laws.* No other federal or state law or regulation requires a prescription prior to distributing or dispensing a Schedule V controlled substance.

657—10.32(124,155A) Dispensing products containing ephedrine, pseudoephedrine, or phenylpropanolamine without a prescription. A product containing ephedrine, pseudoephedrine, or phenylpropanolamine, which substance is a Schedule V controlled substance and is not listed in another controlled substance schedule, may be dispensed or administered without a prescription by a pharmacist to a purchaser at retail pursuant to the conditions of this rule.

10.32(1) *Who may dispense.* Dispensing shall be by a licensed Iowa pharmacist or by a registered pharmacist-intern under the direct supervision of a pharmacist preceptor. This subrule does not prohibit, after the pharmacist has fulfilled the professional and legal responsibilities set forth in this rule and has authorized the dispensing of the substance, the completion of the actual cash or credit transaction or the delivery of the substance by a nonpharmacist.

10.32(2) *Packaging of nonliquid forms.* A nonliquid form of a product containing ephedrine, pseudoephedrine, or phenylpropanolamine includes gel caps. Nonliquid forms of these products to be sold pursuant to this rule shall be packaged either in blister packaging with each blister containing no more than two dosage units or, if blister packs are technically infeasible, in unit dose packets or pouches.

10.32(3) *Frequency and quantity.* Dispensing at retail to the same purchaser within any 30-day period shall be limited to products collectively containing no more than 7,500 mg of ephedrine, pseudoephedrine, or phenylpropanolamine; dispensing at retail to the same purchaser within a single calendar day shall not exceed 3,600 mg.

10.32(4) *Age of purchaser.* The purchaser shall be at least 18 years of age.

10.32(5) *Identification.* The pharmacist shall require every purchaser under this rule to present a current government-issued photo identification, including proof of age when appropriate. The pharmacist shall be responsible for verifying that the name on the identification matches the name provided by the purchaser and that the photo image depicts the purchaser.

10.32(6) *Record.* Purchase records shall be recorded in the real-time electronic pseudoephedrine tracking system (PTS) established and administered by the governor's office of drug control policy pursuant to 657—Chapter 100. If the real-time electronic repository is unavailable for use, the purchase record shall be recorded in an alternate format and submitted to the PTS as provided in 657—subrule 100.3(4).

a. Alternate record contents. The alternate record shall contain the following:

(1) The name, address, and signature of the purchaser.

(2) The name and quantity of the product purchased, including the total milligrams of ephedrine, pseudoephedrine, or phenylpropanolamine contained in the product.

(3) The date and time of the purchase.

(4) The name or unique identification of the pharmacist or pharmacist-intern who approved the dispensing of the product.

b. Alternate record format. The record shall be maintained using one of the following options:

(1) A hard-copy record.

(2) A record in the pharmacy's electronic prescription dispensing record-keeping system that is capable of producing a hard-copy printout of a record.

(3) A record in an electronic data collection system that captures each of the data elements required by this subrule and that is capable of producing a hard-copy printout of a record.

c. PTS records retrieval. Pursuant to 657—subrule 100.4(6), the pharmacy shall be able to produce a hard-copy printout of transactions recorded in the PTS by the pharmacy for one or more specific products for a specified period of time upon request by the board or its representative or to such other persons or governmental agencies authorized by law to receive such information.

10.32(7) *Notice required.* The pharmacy shall ensure that the following notice is provided to purchasers of ephedrine, pseudoephedrine, or phenylpropanolamine products and that the notice is displayed with or on the electronic signature device or is displayed in the dispensing area and visible to the public:

"WARNING: Section 1001 of Title 18, United States Code, states that whoever, with respect to the logbook, knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any materially false, fictitious, or fraudulent statement or representation, or makes or uses any false writing or document knowing the same to contain any materially false, fictitious, or fraudulent statement or entry, shall be fined not more than $250,000 if an individual or $500,000 if an organization, imprisoned not more than five years, or both."

[**ARC 8892B**, IAB 6/30/10, effective 9/1/10]

657—10.33(124,155A) Schedule II perpetual inventory in pharmacy. Each pharmacy located in Iowa that dispenses Schedule II controlled substances shall maintain a perpetual inventory system for all Schedule II controlled substances pursuant to the requirements of this rule. All records relating to the perpetual inventory shall be maintained by the pharmacy and shall be available for inspection and copying by the board or its representative for a period of two years from the date of the record.

10.33(1) *Record format.* The perpetual inventory record may be maintained in a manual or an electronic record format. Any electronic record shall provide for hard-copy printout of all transactions recorded in the perpetual inventory record for any specified period of time and shall state the current inventory quantities of each drug at the time the record is printed.

10.33(2) *Information included.* The perpetual inventory record shall identify all receipts for and disbursements of Schedule II controlled substances by drug or by national drug code (NDC) number. The record shall be updated to identify each prescription filled and each shipment received. The record shall also include incident reports and reconciliation records pursuant to subrules 10.33(3) and 10.33(4).

10.33(3) *Changes to a record.* If a perpetual inventory record is able to be changed, the individual making a change to the record shall complete an incident report documenting the change. The incident report shall identify the specific information that was changed including the information before and after the change, shall identify the individual making the change, and shall include the date and the reason the record was changed. If the electronic record system documents within the perpetual inventory record all of the information that must be included in an incident report, a separate report is not required.

10.33(4) *Reconciliation.* The pharmacist in charge shall be responsible for reconciling the physical inventory of all Schedule II controlled substances with the perpetual inventory balance on a periodic basis but no less frequently than annually. In case of any discrepancies between the physical inventory and the perpetual inventory, the pharmacist in charge shall determine the need for further investigation, and significant discrepancies shall be reported to the board pursuant to rule 10.16(124) and to the DEA pursuant to federal DEA regulations. Periodic reconciliation records shall be maintained and available

for review and copying by the board or agents of the board for a period of two years from the date of the record. The reconciliation process may be completed using either of the following procedures or a combination thereof:

a. The dispensing pharmacist verifies that the physical inventory matches the perpetual inventory following each dispensing and documents that reconciliation in the perpetual inventory record. If controlled substances are maintained on the patient care unit, the nurse or other responsible licensed health care provider verifies that the physical inventory matches the perpetual inventory following each dispensing and documents that reconciliation in the perpetual inventory record. All discrepancies shall be reported to the pharmacist in charge. If any Schedule II controlled substances in the pharmacy's current inventory have been dispensed and verified in this manner within the year, and there are no discrepancies noted, no additional reconciliation action is required. A drug that has had no activity within the year shall be reconciled pursuant to paragraph *"b"* of this subrule.

b. A physical count of each Schedule II controlled substance stocked by the pharmacy shall be completed at least once each year, and that count shall be reconciled with the perpetual inventory record balance. The physical count and reconciliation may be completed over a period of time not to exceed one year in a manner that ensures that the perpetual inventory and the physical inventory of Schedule II controlled substances are annually reconciled. The individual performing the reconciliation shall record the date, the time, the individual's initials or unique identification, and any discrepancies between the physical inventory and the perpetual inventory. Any discrepancies between the physical inventory and the perpetual inventory shall be reported to the pharmacist in charge.

657—10.34(124,155A) Records. Every inventory or other record required to be kept under this chapter or under Iowa Code chapter 124 shall be kept by the registrant and be available for inspection and copying by the board or its representative for at least two years from the date of such inventory or record except as otherwise required in these rules. Controlled substances records shall be maintained in a readily retrievable manner that establishes the receipt and distribution of all controlled substances. Original hard-copy prescription and other pharmacy records more than 12 months old may be maintained in a secure storage area outside the licensed pharmacy department unless such remote storage is prohibited under federal law. A remote storage area shall be located within the same physical structure containing the licensed pharmacy department.

10.34(1) *Schedule I and II records.* Inventories and records of controlled substances listed in Schedules I and II shall be maintained separately from all other records of the registrant.

10.34(2) *Schedule III, IV, and V records.* Inventories and records of controlled substances listed in Schedules III, IV, and V shall be maintained either separately from all other records of the registrant or in such form that the required information is readily retrievable from the ordinary business records of the registrant.

10.34(3) *Date of record.* The date on which a controlled substance is actually received, imported, distributed, exported, or otherwise transferred shall be used as the date of receipt or distribution.

10.34(4) *Receipt and disbursement records.* Each record of receipt or disbursement of controlled substances, unless otherwise provided in these rules or pursuant to federal law, shall include the following:

a. The name of the substance;

b. The strength and dosage form of the substance;

c. The number of units or commercial containers acquired from other registrants, including the date of receipt and the name, address, and DEA registration number of the registrant from whom the substances were acquired;

d. The number of units or commercial containers distributed to other registrants, including the date of distribution and the name, address, and DEA registration number of the registrant to whom the substances were distributed; and

e. The number of units or commercial containers disposed of in any other manner, including the date and manner of disposal and the name, address, and DEA registration number of the registrant to whom the substances were distributed for disposal, if appropriate.

10.34(5) *Dispensing records.* Each record of dispensing of controlled substances to a patient or research subject shall include the following information:

a. The name and address of the person to whom dispensed;

b. The date of dispensing;

c. The name of the substance;

d. The quantity of the substance dispensed; and

e. The name or unique identification of the individual who dispensed or administered the substance.

10.34(6) *Ordering or distributing Schedule I or II controlled substances - DEA Form 222.* Except as otherwise provided by subrule 10.34(7) and under federal law, a DEA Form 222 is required for each distribution of a Schedule I or II controlled substance. An order form may be executed only on behalf of the registrant named on the order form and only if the registrant's DEA and Iowa registrations for the substances being purchased have not expired or been revoked or suspended by the issuing agency.

a. Order forms shall be obtained, executed, and filled pursuant to DEA requirements. Each form shall be complete, legible, and properly prepared, executed, and endorsed and shall contain no alteration, erasure, or change of any kind.

b. The purchaser shall submit Copy 1 and Copy 2 of the order form to the supplier.

c. The purchaser shall maintain Copy 3 of the order form in the files of the registrant. Upon receipt of the substances from the supplier, the purchaser shall record on Copy 3 of the order form the quantity of each substance received, and the date of receipt, and shall initial each line identifying a substance received.

d. The supplier shall record on Copy 1 and Copy 2 of the order form the quantity of each substance distributed to the purchaser and the date on which the shipment is made. The supplier shall maintain Copy 1 of the order form in the files of the supplier and shall forward Copy 2 of the order form to the DEA district office.

e. Order forms shall be maintained separately from all other records of the registrant.

f. Each unaccepted, defective, or otherwise "void" order form and any attached statement or other documents relating to any order form shall be maintained in the files of the registrant.

g. If the registration of any purchaser of Schedule I or II controlled substances is terminated for any reason, or if the name or address of the registrant as shown on the registration is changed, the registrant shall return all unused order forms to the DEA district office.

10.34(7) *Ordering or distributing Schedule I or II controlled substances - electronic ordering system.* A registrant authorized to order or distribute Schedule I or II controlled substances via the DEA Controlled Substances Ordering System (CSOS) shall comply with the requirements of the DEA relating to that system, including the maintenance and security of digital certificates, signatures, and passwords and all record-keeping and reporting requirements.

a. For an electronic order to be valid, the purchaser shall sign the electronic order with a digital signature issued to the purchaser or the purchaser's agent by the DEA.

b. An electronic order may include controlled substances that are not in Schedules I and II and may also include noncontrolled substances.

c. A purchaser shall submit an order to a specific wholesale distributor appropriately licensed to distribute in Iowa.

d. Prior to filling an order, a supplier shall verify the integrity of the signature and the order, verify that the digital certificate has not expired, check the validity of the certificate, and verify the registrant's authority to order the controlled substances.

e. The supplier shall retain an electronic record of every order, including a record of the number of commercial or bulk containers furnished for each item and the date on which the supplier shipped the containers to the purchaser. The shipping record shall be linked to the electronic record of the order. Unless otherwise provided under federal law, a supplier shall ship the controlled substances to the registered location associated with the digital certificate used to sign the order.

f. If an order cannot be filled for any reason, the supplier shall notify the purchaser and provide a statement as to the reason the order cannot be filled. When a purchaser receives such a statement from a

supplier, the purchaser shall electronically link the statement of nonacceptance to the original electronic order. Neither a purchaser nor a supplier may correct a defective order; the purchaser must issue a new order for the order to be filled.

g. When a purchaser receives a shipment, the purchaser shall create a record of the quantity of each item received and the date received. The record shall be electronically linked to the original order and shall identify the individual reconciling the order. A purchaser shall, for each order filled, retain the original signed order and all linked records for that order for two years. The purchaser shall also retain all copies of each unfilled or defective order and each linked statement.

h. A supplier shall retain each original order filled and all linked records for two years. A supplier shall, for each electronic order filled, forward to the DEA within two business days either a copy of the electronic order or an electronic report of the order in a format specified by the DEA.

i. Records of CSOS electronic orders and all linked records shall be maintained by a supplier and a purchaser for two years following the date of shipment or receipt, respectively. Records may be maintained electronically or in hard-copy format. Records that are maintained electronically shall be readily retrievable from all other records, shall be easily readable or easily rendered into a readable format, shall be readily retrievable at the registered location, and shall be made available to the board, to the board's agents, or to the DEA upon request. Records maintained in hard-copy format shall be maintained in the same manner as DEA Form 222.

[**ARC 8539B**, IAB 2/24/10, effective 4/1/10]

657—10.35(124,155A) Physical count and record of inventory. Responsibility for ensuring that a required inventory is timely completed shall rest with the registrant or, in the case of a registered business, shall rest with the owner of the business. A registrant or owner of a registered business may delegate the actual taking of any inventory. The person or persons responsible for taking the inventory shall sign the completed inventory record.

10.35(1) *Record and procedure.* Each inventory record, except the periodic count and reconciliation required pursuant to subrule 10.33(4), shall comply with the requirements of this subrule and shall be maintained for a minimum of two years from the date of the inventory.

a. Each inventory shall contain a complete and accurate record of all controlled substances on hand on the date and at the time the inventory is taken.

b. Each inventory shall be maintained in a handwritten, typewritten, or electronically printed form at the registered location. An inventory of Schedule II controlled substances shall be maintained separately from an inventory of all other controlled substances.

c. Controlled substances shall be deemed to be on hand if they are in the possession of or under the control of the registrant. These shall include prescriptions prepared for dispensing to a patient but not yet delivered to the patient, substances maintained in emergency medical services programs or care facility emergency supplies, outdated or adulterated substances pending destruction, and substances stored in a warehouse on behalf of the registrant.

d. A separate inventory shall be made for each registered location and for each independent activity registered except as otherwise provided under federal law.

e. The inventory shall be taken either prior to opening or following the close of business on the inventory date, and the inventory record shall identify either opening or close of business.

f. The inventory record, unless otherwise provided under federal law, shall include the following information:

(1) The name of the substance;

(2) The strength and dosage form of the substance; and

(3) The quantity of the substance.

g. For all substances listed in Schedule I or II, and for all solid oral and injectable hydrocodone-containing products, the quantity shall be an exact count or measure of the substance.

h. For all substances listed in Schedule III, IV, or V, except for hydrocodone-containing products identified in paragraph *"g"* herein, the quantity may be an estimated count or measure of the substance unless the container has been opened and originally held more than 100 dosage units. If the opened

commercial container originally held more than 100 dosage units, an exact count of the contents shall be made. Liquid oral hydrocodone-containing products packaged in incremented containers shall be measured to the nearest increment; products packaged in nonincremented containers may be estimated to the nearest one-fourth container.

10.35(2) *Initial inventory.* A new registrant shall take an inventory of all stocks of controlled substances on hand on the date the new registrant first engages in the manufacture, distribution, or dispensing of controlled substances. If the registrant commences business or the registered activity with no controlled substances on hand, the initial inventory shall record that fact.

10.35(3) *Annual inventory.* After the initial inventory is taken, a registrant shall take a new inventory of all stocks of controlled substances on hand at least annually. The annual inventory may be taken on any date that is within one year of the previous inventory date.

10.35(4) *Change of ownership.* Both the current owner and the prospective owner shall be responsible for ensuring that an inventory of all controlled substances is timely completed whenever there is a change of ownership of any pharmacy or drug wholesaler licensed pursuant to Iowa Code section 155A.13 or 155A.17, respectively.

10.35(5) *Change of pharmacist in charge (PIC).* An inventory of all controlled substances shall be completed whenever there is a change of PIC. The inventory shall be taken following the close of business the last day of the terminating PIC's employment and prior to opening for business the first day of the new PIC's employment. A single inventory shall be sufficient if there is no lapse between employment of the terminating PIC and the new PIC.

10.35(6) *Change of registered location.* A registrant shall take an inventory of all controlled substances whenever there is a change of registered location. The inventory shall be taken following the close of business the last day at the location being vacated. This inventory shall serve as the ending inventory for the location being vacated as well as a record of beginning inventory for the new location.

10.35(7) *Discontinuing registered activity.* A registrant shall take an inventory of controlled substances at the close of business the last day the registrant is engaged in registered activities. If the registrant is selling or transferring the remaining controlled substances to another registrant, this inventory shall serve as the ending inventory for the registrant discontinuing business as well as a record of additional or starting inventory for the registrant to whom the substances are transferred.

10.35(8) *Newly controlled substances.* On the effective date of the addition of a previously noncontrolled substance to any schedule of controlled substances, any registrant who possesses the newly controlled substance shall take an inventory of all stocks of the substance on hand. That initial inventory record shall be maintained with the most recent controlled substances inventory record. Thereafter, the newly controlled substance shall be included in each inventory made by the registrant.

657—10.36(124) Samples and other complimentary packages—records. Complimentary packages and samples of controlled substances may be distributed to practitioners pursuant to federal and state law only if the person distributing the items leaves with the practitioner a specific written list of the items delivered.

10.36(1) *Distribution record.* The record form for the distribution of complimentary packages of controlled substances shall contain the following information:

a. The name, address, and DEA registration number of the supplier;

b. The name, address, and DEA registration number of the practitioner;

c. The name, strength, and quantity of the specific controlled substances delivered; and

d. The date of delivery.

10.36(2) *Reports to the board.* Any person who distributes controlled substances pursuant to this rule shall report all such distributions to the board. Reports shall:

a. Include the information identified in subrule 10.36(1). Reports may consist of copies of those distribution records or may be computer-generated listings identifying those distributions.

b. Be submitted as soon as practicable after distribution to the practitioner but no less often than once each calendar quarter.

10.36(3) *Practitioner records.* A practitioner who regularly administers or dispenses controlled substances shall keep records of the receipt and disbursement of such drugs, including complimentary packages and samples. Records shall be filed in a readily retrievable manner in accordance with federal requirements and shall be made available for inspection and copying by agents of the board or other authorized individuals for at least two years from the date of the record.

657—10.37(124,126) Revision of controlled substances schedules.

10.37(1) *Application for exception.* Any person seeking to have any compound, mixture, or preparation containing any depressant or stimulant substance listed in any of the schedules in Iowa Code chapter 124 excepted from the application of all or any part of that chapter may apply to the board for such exception.

a. An application for an exception under this rule shall provide evidence that an exception has been granted under the federal Controlled Substances Act.

b. The board shall permit any interested person to file written comments on or objections to the proposal for exception and shall designate the time during which such filings may be made. After consideration of the application and any comments on or objections to the proposal for exception, the board shall issue its findings on the application.

10.37(2) *Designation of new controlled substance.* The board may designate any new substance as a controlled substance to be included in any of the schedules in Iowa Code chapter 124 no sooner than 30 days following publication in the Federal Register of a final order so designating the substance under federal law. Designation of a new controlled substance under this subrule shall be temporary as provided in Iowa Code section 124.201, subsection 4.

10.37(3) *Objection to designation of a new controlled substance.* The board may object to the designation of any new substance as a controlled substance within 30 days following publication in the Federal Register of a final order so designating the substance under federal law. The board shall file objection to the designation of a substance as controlled, shall afford all interested parties an opportunity to be heard, and shall issue the board's decision on the new designation as provided in Iowa Code section 124.201, subsection 4.

657—10.38(124) Temporary designation of controlled substances.

10.38(1) Rescinded IAB 9/22/10, effective 8/30/10.

10.38(2) Reserved.

[**ARC 7906B**, IAB 7/1/09, effective 6/22/09; **ARC 8411B**, IAB 12/30/09, effective 12/1/09; **ARC 8989B**, IAB 8/11/10, effective 7/21/10; **ARC 9091B**, IAB 9/22/10, effective 8/30/10]

657—10.39(124,126) Excluded substances. The Iowa board of pharmacy hereby excludes from all schedules the current list of "Excluded Nonnarcotic Products" identified in Title 21, CFR Part 1308, Section 22. Copies of the list of excluded products may be obtained by written request to the board office at 400 S.W. Eighth Street, Suite E, Des Moines, Iowa 50309-4688.

657—10.40(124,126) Anabolic steroid defined. Anabolic steroid, as defined in Iowa Code section 126.2, paragraph 2, includes any substance identified as such in Iowa Code section 124.208, paragraph 6, or in Iowa Code section 126.2, paragraph 2.

657—10.41(124A) Designation of imitation controlled substances.

10.41(1) *Synthetic cannabinoids.* The following synthetic cannabinoids, including products by whatever trade name that are treated, sprayed, or saturated with these synthetic cannabinoids, are designated imitation controlled substances subject to the provisions of Iowa Code chapter 124A:

a. Dexanabinol, (6aS, 10aS)-9-(hydroxymethyl)-6, 6-dimethyl-3-(2-methyloctan-2-yl)-6a, 7, 10, 10a-tetrahydrobenzo[c]chromen-1-ol, also known as HU-211.

b. 1-butyl-3(1-naphthoyl) indole, also known as JWH-073.

c. 1-pentyl-3-(1-naphthoyl) indole, also known as JWH-018.

d. Phenol, CP 47, 497 and homologues, or 2-[(1R,3S)-3-hydroxycyclohexyl]-5-(2-methyloctan-2-yl)phenol, where side chain n=5, and homologues where side chain n=4, 6, or 7.

10.41(2) *Product examples.* Some currently marketed products containing the imitation controlled substances identified in subrule 10.41(1) include K2, Red Dragon Smoke, Spice, K2 Spice, Mojo, Smoke, Skunk, K2 Summit, and Pandora Potpourri.

[**ARC 9000B**, IAB 8/11/10, effective 7/22/10]

These rules are intended to implement Iowa Code sections 124.201, 124.301 to 124.308, 124.402, 124.403, 124.501, 126.2, 126.11, 147.88, 147.95, 147.99, 155A.13, 155A.17, 155A.26, 155A.37, and 205.3.

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CHAPTER 21
ELECTRONIC DATA IN PHARMACY PRACTICE

657—21.1(124,155A) Definitions. For the purpose of this chapter, the following definitions shall apply:

"Application service provider" means an entity that sells electronic prescription or pharmacy prescription applications as a hosted service where the entity controls access to the application and maintains the software and records on its servers.

"DEA" means the U.S. Department of Justice, Drug Enforcement Administration.

"Electronically prepared prescription" means a prescription that is generated utilizing an electronic prescription application.

"Electronic prescription" means an electronically prepared prescription that is authorized and transmitted from the prescriber to the pharmacy by means of electronic transmission.

"Electronic prescription application" means software that is used to create electronic prescriptions and that is intended to be installed on a prescriber's computers and servers where access and records are controlled by the prescriber.

"Electronic signature" means a confidential personalized digital key, code, number, or other method used for secure electronic data transmissions which identifies a particular person as the source of the message, authenticates the signatory of the message, and indicates the person's approval of the information contained in the transmission.

"Electronic transmission" means the transmission of an electronic prescription, formatted as an electronic data file, from a prescriber's electronic prescription application to a pharmacy's computer, where the data file is imported into the pharmacy prescription application.

"Facsimile transmission" or *"fax transmission"* means the transmission of a digital image of a prescription from the prescriber or the prescriber's agent to the pharmacy. "Facsimile transmission" includes but is not limited to transmission of a written prescription between the prescriber's fax machine and the pharmacy's fax machine; transmission of an electronically prepared prescription from the prescriber's electronic prescription application to the pharmacy's fax machine, computer, or printer; or transmission of an electronically prepared prescription from the prescriber's fax machine to the pharmacy's fax machine, computer, or printer.

"Intermediary" means any technology system that receives and transmits an electronic prescription between the prescriber and the pharmacy.

"Pharmacy prescription application" means software that is used to process prescription information, is installed on a pharmacy's computers or servers, and is controlled by the pharmacy.

"Prescription drug order" or *"prescription"* means a lawful order of a practitioner for a drug or device for a specific patient that is communicated to a pharmacy, regardless of whether the communication is oral, electronic, facsimile, or in printed form.

"Readily retrievable" means that records kept by automatic data processing applications or other electronic or mechanized record-keeping systems can be separated out from all other records within a reasonable time not to exceed 48 hours of a request from the board or other authorized agent or that hard-copy records are kept on which certain items are asterisked, redlined, or in some other manner visually identifiable apart from other items appearing on the records.

"Written prescription" means a prescription that is created on paper, a prescription that is electronically prepared and printed, or a prescription that is electronically prepared and transmitted from the prescriber's electronic device to a pharmacy via facsimile. A written prescription for a controlled substance shall be manually signed by the prescriber in compliance with federal and state laws, rules, and regulations.

[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.2(124,155A) System security and safeguards. To maintain the integrity and confidentiality of patient records and prescription drug orders, any system or computer utilized shall have adequate security including system safeguards designed to prevent and detect unauthorized access, modification, or manipulation of patient records and prescription drug orders. Authentication credentials shall be

securely maintained by the individual to whom the credentials are issued and shall not be shared with or disclosed to any other individual. Once a drug or device has been dispensed, any alterations in either the prescription drug order data or the patient record shall be documented and shall include the identification of all pharmacy personnel who were involved in making the alteration as well as the responsible pharmacist. A pharmacy prescription application used for the receipt and processing of electronic transmissions from a prescriber's electronic prescription application shall comply with DEA requirements relating to electronic prescriptions and shall be certified compliant with DEA regulations.
[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.3(124,155A) Verifying authenticity of an electronically prepared or electronically or fax transmitted prescription. The pharmacist shall ensure the validity of the prescription as to its source of origin.

21.3(1) *Authentication measures.* Measures to be considered in authenticating prescription drug orders received via electronic transmission or fax transmission, or signed utilizing an electronic signature include but may not be limited to:

a. Maintenance of a practitioner number reference or electronic signature file.

b. Verification of the telephone number of the originating facsimile equipment or oral communication device.

c. Telephone verification with the practitioner's office that the prescription was both issued by the practitioner and transmitted by the practitioner or the practitioner's authorized agent.

d. Use of authentication processes approved by the DEA for controlled substances prescriptions.

e. Other efforts which, in the professional judgment of the pharmacist, may be necessary to ensure that the transmission was initiated by the prescriber.

21.3(2) *Prescription originally electronically transmitted.* When a pharmacist receives a written or oral prescription that indicates the prescription was originally electronically transmitted to a pharmacy, the pharmacist shall check with the pharmacy to which the prescription was originally electronically transmitted to determine whether the prescription was received and dispensed.

a. If the pharmacy that received the original electronic prescription dispensed the original prescription, the pharmacist receiving the written prescription shall mark the written prescription as void and shall not dispense the written prescription.

b. If the pharmacy that received the original electronic prescription has not dispensed the prescription, the pharmacy receiving the original electronic prescription shall mark the electronic prescription as void and shall not dispense the electronic prescription. The pharmacy that received the written or oral prescription shall dispense the prescription.
[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.4(124,155A) Automated data processing system. An automated data processing system may be used, subject to the requirements contained in this rule, for the storage and retrieval of original and refill information for prescription orders.

21.4(1) *On-line retrieval of prescription information.* Any computerized system shall provide on-line retrieval (via CRT display and hard-copy printout) of original prescription order information and refill history information. This shall include, but is not limited to, the following:

a. Original prescription number;

b. Date of issuance of the original prescription order by the practitioner;

c. Date and quantity of initial fill;

d. Date and quantity of each refill or partial fill, if applicable, and the total number of refills dispensed to date;

e. Full name and address of the patient;

f. Name, address, and, if a controlled substance, DEA registration number of the prescriber;

g. Name, strength, dosage form, quantity of the drug or device prescribed, and the total number of refills authorized by the prescribing practitioner; and

h. For each fill or refill, the identification code, name, or initials of the dispensing pharmacist.

21.4(2) *Printout of prescription fill data.* Any computerized system shall have the capability of producing a printout of any prescription fill data the user pharmacy is responsible for maintaining or producing under state and federal laws, rules and regulations. This would include a refill-by-refill audit trail for any specified strength and dosage form of any prescription drug by brand or generic name or both. Records maintained or provided in electronic format shall be sortable by prescriber name, patient name, drug dispensed, and date filled. Any computerized system employed by a user pharmacy shall be capable of providing at the pharmacy a printout or electronic file of the records in a format that is readily understandable to the board or other authorized agents. A pharmacy may contract with an application service provider, or the pharmacy may maintain computer servers at a remote location, but all required records shall be readily retrievable at the pharmacy if requested by the board or other authorized agent. The printout or electronic record shall include the following:

a. Name of the prescribing practitioner;
b. Name and address of the patient;
c. Quantity dispensed on each fill;
d. Date of dispensing for each fill;
e. Name or identification code of the dispensing pharmacist; and
f. The number of the original prescription order.

21.4(3) *Auxiliary procedure for system downtime.* In the event that a pharmacy utilizing a computerized system experiences system downtime, the pharmacy shall have an auxiliary procedure that will be used for documentation of fills and refills of prescription orders. This auxiliary procedure shall ensure that refills are authorized by the original prescription order, that the maximum number of refills has not been exceeded, and that all of the appropriate data is retained for online data entry when the computer system is again available for use. As soon as reasonably possible upon resuming use of the computerized system, entry of all appropriate data accumulated during the system downtime shall be completed.

21.4(4) *Prescription notations.* When a pharmacist fills an electronic prescription that would require the pharmacist to make a notation on the prescription if the prescription were a written prescription, the pharmacist shall make the same notation electronically and shall retain the annotation electronically in the prescription record or in linked files.

21.4(5) *Records for electronic prescriptions for controlled substances.* A pharmacy that processes electronic prescriptions for controlled substances shall use a pharmacy prescription application that complies with DEA requirements relating to electronic prescriptions and that has been certified compliant with DEA regulations. When a prescription is received electronically from a prescriber's electronic prescription application into the pharmacy prescription application, the prescription and all required annotations shall be retained electronically.

[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.5(124,155A) Pharmacist verification of controlled substance refills—daily printout or logbook. The individual pharmacist who makes use of the pharmacy prescription application shall provide documentation of the fact that the refill information entered into the pharmacy prescription application each time the pharmacist refills an original written, fax, or oral prescription order for a controlled substance is correct. If the pharmacy prescription application provides a hard-copy printout of each day's controlled substance prescription order refill data, that printout shall be verified, dated, and signed by each individual pharmacist who refilled a controlled substance prescription order. Each individual pharmacist must verify that the data indicated is correct and sign this document in the same manner as the pharmacist would sign a check or legal document (e.g., J. H. Smith or John H. Smith). This document shall be maintained in a separate file at that pharmacy for a period of two years from the dispensing date. This printout of the day's controlled substance prescription order refill data shall be generated by and available at each pharmacy using a computerized pharmacy prescription application within 48 hours of the date on which the refill was dispensed. The printout shall be verified and signed by each pharmacist involved with such dispensing.

In lieu of preparing and maintaining printouts as provided above, the pharmacy may maintain a bound logbook or separate file. The logbook or file shall include a statement signed each day by each individual pharmacist involved in each day's dispensing that attests to the fact that the refill information entered into the pharmacy prescription application that day has been reviewed by the pharmacist and is correct as shown. Pharmacist statements shall be signed in the manner previously described. The logbook or file shall be maintained at the pharmacy for a period of two years after the date of dispensing the appropriately authorized refill.
[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.6 Reserved.

657—21.7(124,155A) Electronically prepared prescriptions. A prescriber may initiate and authorize a prescription drug order utilizing a computer or other electronic communication or recording device. The prescription drug order shall contain all information required by Iowa Code section 155A.27. The receiving pharmacist shall be responsible for verifying the authenticity of an electronically transmitted prescription or of an electronic signature as provided by rule 657—8.19(124,126,155A) or 657—21.3(124,155A).

21.7(1) *Controlled substances.* A prescription for a controlled substance prepared pursuant to this rule may be transmitted to a pharmacy via facsimile transmission as provided by rule 657—21.9(124,155A) or rules 657—21.12(124,155A) through 657—21.16(124,155A). The transmitted prescription shall include the prescriber's original signature or electronic signature. A prescription for a controlled substance may be transmitted by a prescriber to a pharmacy via electronic transmission pursuant to DEA requirements for electronic prescribing of controlled substances. Both the prescriber's electronic prescription application and the pharmacy prescription application shall be certified compliant with DEA regulations for electronic prescriptions. An electronically prepared prescription shall not be electronically transmitted to the pharmacy if the prescription has been printed prior to the electronic transmission. An electronically prepared and electronically transmitted prescription that is printed following the electronic transmission shall be clearly labeled as a copy only, not valid for dispensing.

21.7(2) *Noncontrolled prescription drugs.* A prescription for a noncontrolled prescription drug prepared pursuant to this rule may be transmitted to a pharmacy via electronic transmission as provided in rule 657—21.8(124,155A) or via facsimile transmission as provided in rule 657—21.9(124,155A). The transmitted prescription shall include the prescriber's original signature or electronic signature.

21.7(3) *Printed (hard-copy) prescriptions.* A prescription prepared pursuant to this rule may be printed by the prescriber or prescriber's agent for delivery to a pharmacy. An electronically prepared and electronically transmitted prescription that is printed following the electronic transmission shall be clearly labeled as a copy, not valid for dispensing.

a. A prescription for a controlled substance shall include the prescriber's original signature.

b. If the prescriber authenticates a prescription for a noncontrolled prescription drug utilizing an electronic signature, the printed prescription shall be printed on security paper that is designed to prevent photocopying or other duplication of the printed prescription by prominently disclosing the word "void" or "copy" on the duplication or by including a watermark or background that will not appear on duplication. If a watermark or background is used, the prescription shall include a statement that unless the watermark or background appears, the prescription is not valid. Security paper that complies with the security requirements of the U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, shall be deemed to comply with the security requirements of this paragraph.

c. When a prescription prepared pursuant to this subrule is transmitted to a pharmacy via facsimile, or when a prescription prepared pursuant to this subrule is scanned into an electronic record system, the watermark or background will not appear or the word "void" or "copy" will appear. The means of transmission via facsimile and the means of scanning into an electronic record system shall ensure that prescription information is not obscured or rendered illegible due to security features of the paper utilized by the prescriber to prepare the prescription. It is the responsibility of the pharmacist to verify the validity of the prescription as provided by rule 657—8.19(124,126,155A) or 657—21.3(124,155A).
[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.8(124,155A) Electronic transmission of a prescription. Prescription drug orders may be communicated directly from a prescriber's computer or other electronic device utilizing an electronic prescription application to a pharmacy prescription application by electronic transmission. The receiving pharmacist shall be responsible for verifying the authenticity of an electronically transmitted prescription or of an electronic signature as provided by rule 657—8.19(124,126,155A) or 657—21.3(124,155A). The authenticity of a prescription transmitted via electronic transmission between a DEA-certified electronic prescription application and a DEA-certified electronic pharmacy prescription application shall be deemed verified by virtue of the security processes included in those applications.

21.8(1) *Secure transmission and patient's choice.* Orders shall be sent only to the pharmacy of the patient's choice, and no intermediary shall change the content of the prescription drug order or compromise its confidentiality during the transmission process. The electronic format of the prescription drug order may be changed by the intermediary to facilitate the transmission between electronic applications as long as the content of the prescription drug order remains unchanged. This subrule does not prohibit the receiving pharmacist from amending or adding to the content of a prescription as necessary in compliance with federal and state laws, rules, or regulations.

21.8(2) *Information required.* In addition to the information requirements for a prescription, an electronically transmitted prescription drug order shall identify the transmitter's telephone number for verbal confirmation, the time and date of transmission, and the pharmacy intended to receive the transmission as well as any other information required by federal or state laws, rules, or regulations.

21.8(3) *Who may transmit.* Orders shall be initiated and authorized only by a prescriber licensed and authorized under state law to prescribe the drug or device identified in the prescription and shall include the prescriber's electronic signature. An order for a controlled substance shall include the prescriber's DEA registration number. Orders may be transmitted by the prescriber or the prescriber's agent. An order transmitted by the prescriber's agent shall include the agent's first and last names and title.

21.8(4) *Original prescription.* The electronic transmission shall be deemed the original prescription drug order provided it meets the requirements of this rule. The electronic transmission of a prescription drug order for a controlled substance shall meet all requirements of the DEA for electronic prescribing. An electronically prepared and transmitted prescription shall be maintained electronically in the prescriber's electronic prescription application and the pharmacy prescription application for a minimum period of two years following the date of last activity on that prescription record. Once a prescription is created and transmitted electronically, the prescription record shall not be printed and retained as a hard-copy record.

21.8(5) *Failure of electronic transmission.* If the transmission of an electronic prescription fails, the intermediary shall notify the prescriber of that transmission failure and the prescriber may print the prescription, manually sign the printed prescription, and deliver the prescription to the pharmacy via facsimile transmission. The faxed prescription shall indicate that it was originally transmitted to the named pharmacy, the date and time of the original electronic transmission, and the fact that the original transmission failed.

[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.9(124,155A) Facsimile transmission (fax) of a prescription. A pharmacist may dispense noncontrolled and controlled drugs, excluding Schedule II controlled substances, pursuant to a prescription faxed to the pharmacy by the prescribing practitioner or the practitioner's agent. A pharmacist may dispense a Schedule II controlled substance to fill an emergency prescription authorization pursuant to the requirements of rule 657—10.22(124). The means of transmission via facsimile shall ensure that prescription information is not obscured or rendered illegible due to security features of the paper utilized by the prescriber to prepare a written prescription. The faxed prescription drug order shall serve as the original prescription, shall be maintained for a minimum of two years from the date of last fill or refill, and shall contain all information required by Iowa Code section 155A.27, including the prescriber's signature or electronic signature. The faxed prescription drug order, if transmitted by the practitioner's agent, shall identify the transmitting agent by first and last

names and title and shall include the prescriber's signature or electronic signature. A prescription for a controlled substance shall include the prescriber's manual signature. If the controlled substance prescription is not manually signed by the prescriber, the pharmacist shall orally verify the authenticity and the content of the prescription by contacting the prescriber or the prescriber's agent via telephone. The receiving pharmacist shall be responsible for verifying the authenticity of an electronically transmitted prescription or of an electronic signature as provided by rule 657—8.19(124,126,155A) or 657—21.3(124,155A). This rule shall not apply to a prescription drug order transmitted pursuant to 657—paragraph 8.15(1)*"d."*

[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 8171B**, IAB 9/23/09, effective 10/28/09; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.10 and **21.11** Reserved.

657—21.12(124,155A) Prescription drug orders for Schedule II controlled substances. A pharmacist may dispense Schedule II controlled substances pursuant to an electronic transmission to the pharmacy of an electronically prepared prescription if both the prescriber's electronic prescription application and the pharmacy prescription application have been certified to comply with DEA requirements for electronic prescribing of controlled substances. Records of electronically prepared and transmitted prescriptions shall be maintained electronically. A pharmacist may dispense Schedule II controlled substances pursuant to facsimile transmission to the pharmacy of a written, signed prescription from the prescribing practitioner or the practitioner's agent provided that the original written, signed prescription is received by the pharmacist prior to the actual dispensing of the controlled substance. An emergency authorization transmitted to the pharmacy by the practitioner's agent shall include the first and last names and title of the individual who transmitted the prescription. The means of transmission shall ensure that prescription information is not obscured or rendered illegible due to security features of the paper utilized by the prescriber to prepare a written prescription. The original prescription shall be verified against the transmission at the time the substance is actually dispensed, shall be properly annotated, and shall be retained with the electronic transmission for filing.

[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.13(124,155A) Facsimile transmission of a prescription for Schedule II controlled substances—emergency situations. A pharmacist may in an emergency situation as defined in 657—subrule 10.22(1) dispense Schedule II controlled substances pursuant to a facsimile transmission to the pharmacy of a written, signed prescription from the prescribing practitioner or the practitioner's agent pursuant to the requirements of 657—10.22(124). The facsimile or a print of the facsimile transmission shall serve as the temporary written record required by 657—subrule 10.22(2).

[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.14(124,155A) Facsimile transmission of a prescription for Schedule II narcotic substances—parenteral. A prescription for a nonoral dosage unit of a Schedule II narcotic substance to be compounded for the direct administration to a patient by parenteral, intravenous, intramuscular, subcutaneous, or intraspinal infusion may be transmitted by a practitioner or the practitioner's agent to the pharmacy via facsimile. If the prescription is transmitted by the practitioner's agent, the transmission shall include the first and last names and title of the individual who transmitted the prescription. The means of transmission shall ensure that prescription information is not obscured or rendered illegible due to security features of the paper utilized by the prescriber to prepare a written prescription. The facsimile serves as the original written prescription.

[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.15(124,155A) Facsimile transmission of Schedule II controlled substances—long-term care facility patients. A prescription for any Schedule II controlled substance for a resident of a long-term care facility may be transmitted by the practitioner or the practitioner's agent to the dispensing pharmacy via facsimile. If the prescription is transmitted by the practitioner's agent, the transmission shall include the first and last names and title of the individual who transmitted the prescription. The

means of transmission shall ensure that prescription information is not obscured or rendered illegible due to security features of the paper utilized by the prescriber to prepare a written prescription.

21.15(1) *Original prescription.* The facsimile serves as the original written prescription.

21.15(2) *Information required.* The patient's address on the prescription shall indicate that the address location is a long-term care facility.

[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—21.16(124,155A) Facsimile transmission of Schedule II controlled substances—hospice patients. A prescription for a Schedule II controlled substance for a patient enrolled in a hospice care program licensed pursuant to Iowa Code chapter 135J or a program certified or paid for by Medicare under Title XVIII may be transmitted via facsimile by the practitioner or the practitioner's agent to the dispensing pharmacy. If the prescription is transmitted by the practitioner's agent, the transmission shall include the first and last names and title of the individual who transmitted the prescription. The means of transmission shall ensure that prescription information is not obscured or rendered illegible due to security features of the paper utilized by the prescriber to prepare a written prescription.

21.16(1) *Original prescription.* The facsimile serves as the original written prescription.

21.16(2) *Information required.* The practitioner or the practitioner's agent shall note on the prescription that the patient is a hospice patient.

[**ARC 7636B**, IAB 3/11/09, effective 4/15/09; **ARC 9912B**, IAB 12/14/11, effective 1/18/12]

These rules are intended to implement Iowa Code sections 124.301, 124.306, 124.308, 155A.27, and 155A.35.

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CHAPTER 23
LONG-TERM CARE PHARMACY PRACTICE

657—23.1(155A) Definitions. For the purposes of this chapter, the following definitions shall apply:

"Consultant pharmacist" in a long-term care facility means a pharmacist licensed to engage in the practice of pharmacy in this state who is responsible for developing, coordinating, and supervising pharmaceutical services in a long-term care facility on a regularly scheduled basis. A consultant pharmacist:

1. Reviews the distribution and storage of drugs and devices and assists facilities in establishing the policies and procedures for the distribution and storage of drugs and devices and makes appropriate recommendations to the facility and the provider pharmacist;
2. Monitors the therapeutic response and utilization of all drugs and devices prescribed for each resident. The following shall be used as minimum guidelines supplementing the pharmacist's professional expertise:

- Regulations and interpretive guidelines of the Centers for Medicare and Medicaid Services, if applicable;
- Rules of the Iowa department of inspections and appeals; and
- Other state rules and regulations;

3. Serves as a resource for pharmacy-related education services within the facility;
4. Participates in quality management of resident care in the facility;
5. Communicates with the provider pharmacist regarding areas of mutual concern and resolution thereof.

"Long-term care facility" or *"facility"* means:

1. A facility licensed by the Iowa department of inspections and appeals under Iowa Code chapter 135C or Iowa Code chapter 135H;
2. A hospital-based long-term care unit certified under 42 CFR, Part 483, Subpart B;
3. An inpatient hospice certified under 42 CFR, Part 418;
4. A group living facility wherein health care related services are provided by the facility; or
5. A health care facility registered with the board under Iowa Code chapter 124.

"Long-term care pharmacy" or *"provider pharmacy"* means a hospital pharmacy, a general pharmacy, a limited use pharmacy, or a nonresident pharmacy in which drugs, chemicals, or poisons are prepared, compounded, dispensed, vended, distributed, or sold on a regular and recurring basis to or for the use of residents of a long-term care facility and from which related pharmacy services are delivered.

"Medication order," as used in these rules, means a written order from a practitioner or an oral order from a practitioner or the practitioner's authorized agent for administration of a drug or device. For purposes of this chapter, "medication order" includes a prescription.

"Provider pharmacist" means a pharmacist licensed to engage in the practice of pharmacy who is employed by or contracted to a long-term care pharmacy or a provider pharmacy and who is responsible for supervising the accurate dispensing and proper delivery of drugs and devices to a long-term care facility located within this state. These services shall include, at a minimum, proper medication labeling, storage, transport, record keeping, and prospective drug utilization review in compliance with all federal and state laws and regulations.

"Single unit package" means a package that contains one discrete pharmaceutical dosage form.

"Unit dose dispensing system" means a drug distribution system utilizing single unit, unit dose, or unit of issue packaging in a manner that helps reduce or remove traditional drug stocks from resident care areas and enables the selection and distribution of drugs to be pharmacy-based and controlled.

"Unit dose package" means a package that contains that particular dose of a drug ordered for a resident for one administration time. A unit dose package is not always a single unit package.

"Unit of issue package" means a package that provides multiple units or doses attached to each other but separated in a card or specifically designed container.

657—23.2(124,155A) Applicability of rules. Nothing in these rules shall be deemed to constitute a waiver or abrogation of any of the provisions of board rules or other applicable provisions of state and federal laws and rules, nor should these rules be construed as authorizing or permitting any person not licensed as a pharmacist to engage in the practice of pharmacy.

657—23.3(124,155A) Freedom of choice. Pursuant to 657—subrule 8.11(5), no pharmacist or pharmacy shall participate in any agreement or plan that infringes on any resident's right to freedom of choice as to the provider of pharmacy services. A resident in a long-term care facility shall have a choice of long-term care pharmacy so long as the pharmacy's drug delivery system provides for the timely delivery of drugs compatible with the established system currently used by the facility. Determination of compatibility may consider medication administration, accessibility, and payment system.

657—23.4(124,155A) Pharmacy responsibilities. The long-term care pharmacy shall be responsible for:

1. Providing drugs pursuant to a medication order for an individual resident, properly labeled for that resident, as addressed in rule 657—22.1(155A) or 657—23.13(124,155A).
2. Dispensing drugs for residents of long-term care facilities consistent with the drug distribution system described in the facility's policies and procedures.
3. Affixing labels to each container of drugs for residents in long-term care facilities, in compliance with rule 657—22.1(155A), 657—23.13(124,155A), or 657—23.14(124,155A).
4. Maintaining records of all transactions of the long-term care pharmacy as may be required by law and maintaining accurate control over and accountability for all drugs and prescription devices.
5. Developing a drug recall procedure that protects the health and safety of residents including immediate discontinuation of any recalled drug or device and subsequent notification of the prescriber and director of nursing of the facility.
6. Providing a 24-hour emergency service procedure either directly or by contract with another pharmacy.
7. Reviewing patient profiles to ensure the appropriateness of therapy for that resident and the compatibility of the drug and dosage for that resident when processing new medication orders.
8. Providing sufficient and accurate information to facility staff regarding the appropriate administration and use of all dispensed drugs and devices.
9. Communicating with the consultant pharmacist and the facility regarding concerns and resolution thereof.

657—23.5(124,155A) Emergency drugs. A supply of emergency drugs may be provided by one long-term care pharmacy to the facility pursuant to rule 657—22.7(124,155A).

23.5(1) *Emergency medication order—pharmacist review.* When an emergency drug is provided pursuant to rule 657—22.7(124,155A), the medication order shall be reviewed by the resident's dispensing pharmacist prior to the administration of a second dose.

23.5(2) *Other emergency drugs and devices.* In addition to an emergency box or stat drug box, a long-term care facility staffed by one or more persons licensed to administer drugs may maintain a stock of intravenous fluids, irrigation fluids, heparin flush kits, medicinal gases, sterile water and saline, and prescription devices. Such stock shall be limited to a listing to be determined by the provider pharmacist in consultation with the consultant pharmacist and the medical director and director of nursing of the facility.

657—23.6(124,155A) Space, equipment, and supplies. Each pharmacy serving a long-term care facility shall have adequate space, equipment, and supplies for the professional and administrative functions of the pharmacy and to meet the needs of the residents served. The pharmacy shall comply with all reference, environment, and equipment requirements contained in rules 657—6.3(155A) and 657—8.5(155A).

657—23.7(124,155A) Policies and procedures. Policies and procedures shall be formulated to cover the provider pharmacy's packaging and dispensing responsibilities to the residents of the long-term care facility. The policies and procedures shall be maintained at the provider pharmacy and shall be available to the facility and the consultant pharmacist. Policies and procedures shall include, at a minimum:

1. Methods used to dispense and deliver drugs and devices to the facility in a timely fashion;
2. Proper notification to the facility when a drug or device is not readily available;
3. Proper labeling requirements to meet the needs of the facility and which are consistent with state and federal laws and regulations;
4. Appropriate drug destruction or return of unused drugs, or both, consistent with state and federal laws and regulations.

657—23.8 Reserved.

657—23.9(124,155A) Medication orders. Drugs and prescription devices may be dispensed only upon orders of an authorized prescriber.

23.9(1) *Requirements.* New orders transmitted to the pharmacy for drugs for residents of the facility shall, at a minimum, contain resident name, drug name and strength, directions for use, date of order, and name of prescriber. Orders for Schedule II controlled substances shall comply with the requirements of rule 23.18(124,155A).

23.9(2) *Abbreviations.* Abbreviations or chemical symbols utilized in medication orders shall be only those abbreviations or symbols that are customarily used in the practice of medicine and pharmacy or those on a list of approved abbreviations developed by the appropriate committee or representative of the facility.

23.9(3) *Who may transmit medication orders.* An authorized prescriber or prescriber's agent or any person who is employed by a long-term care facility and who is authorized by the facility's policies and procedures may transmit to the long-term care pharmacy a medication order lawfully ordered by a practitioner authorized to prescribe drugs and devices. An order transmitted by the prescriber's agent shall include the agent's first and last names and title.

23.9(4) *Influenza and pneumococcal vaccines.* As authorized by federal law, a written or verbal patient-specific medication administration order shall not be required prior to administration to an adult patient of influenza and pneumococcal polysaccharide vaccines pursuant to physician-approved facility policy and after the patient has been assessed for contraindications. Administration shall be recorded in the patient's record. The facility shall submit to the provider pharmacy a listing of those residents or staff members who have been immunized utilizing vaccine from each vial supplied by the provider pharmacy.
[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—23.10(124,155A) Stop orders. The consultant pharmacist, in consultation with the provider pharmacist, the medical director, and the appropriate committee or representative of the facility, shall develop and implement an automatic stop order policy. To ensure that drug orders are not continued inappropriately, drugs not specifically limited when ordered as to duration of therapy or number of doses shall be controlled by the automatic stop order policy in accordance with the status of the patient.

657—23.11(124,155A) Drugs dispensed—general requirements.

23.11(1) *Labeling.* All prescription containers, other than those dispensed pursuant to rule 657—22.1(155A), 657—23.13(124,155A), or 657—23.14(124,155A), shall be properly labeled in accordance with 657—subrule 6.10(1).

a. If a label change is required to reflect a change in directions, the pharmacy shall be responsible for affixing the correct label to the container. Long-term care facility personnel shall not be authorized to affix such a label to the drug container.

b. Direction change labels that notify long-term care facility personnel that a change in directions for the drug has taken place may be used and affixed to the container by facility personnel so as not to deface the original label.

23.11(2) *Medication order required.* Dispensing of all drugs to the facility shall be pursuant to a medication order for an individual resident except as provided in rules 657—23.5(124,155A) and 657—23.14(124,155A) and in subrule 23.9(4).

23.11(3) *Prescription containers.* All prescription containers, including but not limited to single unit, unit dose, and unit of issue containers utilized for distribution within a long-term care facility, shall meet minimum requirements as established by the United States Pharmacopoeia. When applicable, light-resistant packaging shall be used.

23.11(4) *Floor stock.* Prescription drugs, as defined by Iowa Code section 155A.3(30), shall not be floor-stocked in a long-term care facility except as provided in this subrule or in subrule 23.5(2). Bulk supplies of nonprescription drugs may be maintained as provided in subrule 23.13(3). Any pharmacy that utilizes a floor stock distribution system pursuant to this subrule shall develop and implement procedures to accurately establish proof of use of prescription drugs and shall maintain a perpetual inventory, whether by electronic or manual means, of all prescription drugs so dispensed. A floor stock distribution system for prescription drugs may be permitted only under the following circumstances:

a. A licensed pharmacy under the direct supervision and control of a pharmacist is established in the facility; or

b. The facility and the hospital wherein the licensed pharmacy is located are both licensed under Iowa Code chapter 135B with a single hospital license.

657—23.12 Reserved.

657—23.13(124,155A) Labeling drugs under special circumstances.

23.13(1) *Insulin, ophthalmics, otic preparations, biologicals, and other injectables for individual patients.* These drugs shall be dispensed with a label affixed to the immediate container showing at least the resident's name and location.

23.13(2) *Legend solutions—irrigation and infusion.* Legend irrigation solutions and infusion solutions supplied by a licensed pharmacy may be stored in the locked medication area of a long-term care facility provided that:

a. The facility uses the solution only within the confines of the facility and under the orders of an authorized prescriber;

b. Upon use, the container is identified by resident name and is used exclusively for that resident;

c. The container is dated and initialed upon opening;

d. The solution is stored appropriately after opening according to facility policy.

23.13(3) *Floor-stocked, nonprescription drug containers.* All such nonprescription drugs intended for use within the facility shall be in appropriate containers and adequately labeled to identify, at a minimum, brand name or generic name and manufacturer, strength, lot number, and expiration date. An internal code that centrally references manufacturer and lot number may be utilized.

23.13(4) *Leave meds.* Labeling of prescription drugs for residents on leave from the facility for a period in excess of 24 hours shall comply with 657—subrule 6.10(1). The dispensing pharmacy shall be responsible for packaging and labeling leave meds in compliance with this subrule.

23.13(5) *Discharge meds.* Drugs authorized for a resident being discharged from the facility shall be labeled in compliance with 657—subrule 6.10(1) before the resident removes those drugs from the facility premises. The dispensing pharmacy shall be responsible for packaging and labeling discharge meds in compliance with this subrule.

657—23.14(124,155A) Labeling of biologicals and other injectables supplied to a facility. Labeling of biologicals and other injectables supplied to a facility for a health immunization or ongoing screening program, such as influenza vaccine, tuberculin skin test, or hepatitis-B, and intended for use in the facility, shall include the following information in addition to the manufacturer's label. The pharmacy label shall be affixed so as not to obscure the manufacturer's label.

1. Identification of pharmacy;
2. Name of facility;

3. Name of biological or drug;
4. Route of administration when necessary for clarification;
5. Strength of biological or drug;
6. Auxiliary labels as needed;
7. Date dispensed.

657—23.15(124,155A) Return and reuse of drugs and devices. Pharmacists and pharmacies shall not accept from residents or their agents for reuse or resale any drugs, prescribed drugs, chemicals, poisons or medical devices unless, in the professional judgment of the pharmacist, the integrity of the prescription drug has not in any way been compromised. Under no circumstances shall a pharmacist accept from a patient or patient's agent any controlled substances for return, exchange, or resale except to the same patient. Prescription drugs, excluding controlled substances, dispensed in unit dose, unit of issue, or single unit packaging pursuant to 657—22.1(155A) may, however, be returned and reused as authorized in 657—subrule 22.1(6). No items of a personal contact nature which have been removed from the original package or container after sale shall be accepted for return, exchanged, or resold by any pharmacist.

657—23.16(124,155A) Destruction of outdated and improperly labeled drugs. The consultant pharmacist, in consultation with the provider pharmacist and a facility representative, shall develop and implement written policies and procedures to ensure that all discontinued, outdated, deteriorated, or improperly labeled drugs and all containers with worn, illegible or missing labels are destroyed or disposed of so as to render them unusable. Drugs shall be destroyed by means that will ensure protection against unauthorized possession or use.

657—23.17(124,155A) Accountability of controlled substances.

23.17(1) *Proof of use.* Documentation of use of Schedule II controlled substances shall be upon proof-of-use forms. A committee or representative of the facility may also require that Schedule III, IV, or V controlled substances or any other drugs be accounted for on proof-of-use forms. Proof-of-use forms shall specify at a minimum:

a. Name of drug;
b. Dose;
c. Name of ordering prescriber;
d. Name of resident;
e. Date and time of administration to resident;
f. Identification of individual administering;
g. Documentation of destruction, return to the pharmacy, or other disposition of all unused portions of single doses including the signatures of two individuals, at least one of whom is a licensed health care professional.

23.17(2) *Container requirement.* Any drug required to be counted and accounted for with proof-of-use forms shall be dispensed in a container that allows visual verification of quantity. Containers for solid oral doses must allow visual identification of individual doses and individual accountability.

657—23.18(124,155A) Schedule II orders. This rule shall not apply to Schedule II controlled substances orders in facilities that utilize a floor stock distribution system as provided in subrule 23.11(4). Schedule II controlled substances in all other facilities shall be dispensed only upon receipt of an electronic prescription prepared, transmitted, and received in compliance with DEA regulations for electronic prescriptions or an original written order signed by the prescribing individual practitioner or upon receipt of a facsimile transmission of an original written order signed by the prescribing individual practitioner pursuant to rule 657—21.15(124,155A). In emergency situations as defined in 657—subrule 10.22(1), Schedule II controlled substances may be dispensed in compliance with the

requirements of rule 657—10.22(124) or rule 657—21.13(124,155A), as applicable. In all cases, any order for a Schedule II controlled substance shall specify the total quantity authorized by the prescriber.
[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—23.19(124,155A) Dispensing Schedule II controlled substances. A pharmacy that dispenses Schedule II controlled substances shall advise facility personnel that federal and state laws and regulations governing such drugs require that accurate records be kept of their administration or their ultimate disposition in compliance with rule 657—23.17(124,155A). The pharmacy shall further advise facilities that stored Schedule II substances shall be double-locked in accordance with rules of the Iowa department of inspections and appeals. The requirement for double-locking Schedule II controlled substances shall not apply to periods during which drugs are being administered to residents; however, these substances shall be secured during such administration periods.

657—23.20(124,155A) Partial filling of Schedule II controlled substances. A medication order for a Schedule II controlled substance for a resident in a long-term care facility (LTCF) may be filled in partial quantities to include individual dosage units. The pharmacist shall record on the written or electronic medication order that the patient is an "LTCF patient." A medication order that is partially filled and does not contain the notation "LTCF patient" shall be deemed to have been filled in violation of the controlled substances Act.

23.20(1) *Partial filling record.* For each partial filling, the dispensing pharmacist shall record on the back of the medication order (or on another appropriate record, uniformly maintained, and readily retrievable) the date of the partial filling, quantity dispensed, remaining quantity authorized to be dispensed, and the identification of the dispensing pharmacist.

23.20(2) *Total dispensed.* The total quantity of Schedule II controlled substances dispensed in all partial fillings shall not exceed the total quantity prescribed.

23.20(3) *Duration.* Schedule II medication orders for residents in a long-term care facility shall be valid for a period not to exceed 60 days from the issue date unless sooner terminated by the discontinuance of the drug.

23.20(4) *Requirements of computerized system.* Information pertaining to current Schedule II medication orders for residents in a long-term care facility may be maintained in a computerized system if this system has the capability to permit:

a. Output (display and printout) of the original prescription number, date of issue, identification of prescribing individual practitioner, identification of resident, address of the long-term care facility, identification of the drug authorized (to include dosage form, strength and quantity), listing of the partial fillings that have been dispensed under each medication order, and the information required in this rule.

b. Immediate (real-time) updating of the medication order record each time a partial filling of the medication order is conducted.

c. Retrieval of partially filled Schedule II medication order information as required in rule 657—21.4(124,155A).
[**ARC 9912B**, IAB 12/14/11, effective 1/18/12]

657—23.21(124,155A) Destruction of controlled substances. Controlled substances dispensed to a resident in a long-term care facility and subsequently requiring destruction due to discontinuance of the drug, death of the resident, or other reasons necessitating destruction shall be destroyed by one of the following methods.

23.21(1) *Destruction in the facility.* In facilities staffed by one or more persons licensed to administer drugs, a licensed health care professional (pharmacist, registered nurse, licensed practical nurse) may destroy controlled substances in witness of one other responsible adult. The professional destroying or otherwise disposing of the drug shall prepare and maintain a readily retrievable record of the destruction or other disposition which shall be clearly marked to indicate the destruction or other disposition of resident drugs. The record shall include, at a minimum, the following:

a. Resident name;

b. The name, strength, and dosage form of the substance;

c. The quantity destroyed or otherwise disposed of;

d. The date the substance is destroyed or disposed of;

e. The signature or uniquely identifying initials or other unique identification of the professional and the witness.

23.21(2) *Destruction or other disposition in the long-term care pharmacy.* Controlled substances returned to the pharmacy for destruction or other disposition may be destroyed or otherwise disposed of pursuant to the requirements of 657—subrule 10.18(3).

These rules are intended to implement Iowa Code sections 124.301, 124.306, 124.308, 155A.2, 155A.13, 155A.15, 155A.21, 155A.27, 155A.28, 155A.33, 155A.35, and 155A.36.

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[Filed 3/5/08, Notice 12/19/07—published 3/26/08, effective 4/30/08]
[Filed ARC 9912B (Notice ARC 9671B, IAB 8/10/11), IAB 12/14/11, effective 1/18/12]

CHAPTER 24
PHARMACY INTERNET SITES

657—24.1(155A) Purpose and scope. In the interests of public information, health, and safety, and pursuant to the provisions of Iowa Code section 155A.13B, this chapter establishes requirements for the Internet sale of prescription drugs by pharmacies and for VIPPS accreditation. This chapter identifies specific information that must be displayed on a pharmacy Internet site and establishes requirements for site registration. The requirements of this chapter apply to any Internet pharmacy and pharmacy Internet site as defined in rule 657—24.2(155A).
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.2(155A) Definitions. For the purposes of this chapter, the following definitions shall apply:

"Board" means the Iowa board of pharmacy.

"DEA" means the U.S. Department of Justice, Drug Enforcement Administration.

"Electronic mail" or *"e-mail"* means any message transmitted through the Internet, including but not limited to messages transmitted from or to any address affiliated with an Internet site.

"Internet" means the federated international system that is composed of allied electronic communication networks linked by telecommunication channels, that uses standardized protocols, and that facilitates electronic communication services, including but not limited to use of the World Wide Web; the transmission of electronic mail or messages; the transfer of files and data or other electronic information; and the transmission of voice, image, and video.

"Internet broker" means an entity that serves as an agent or intermediary or other capacity that causes the Internet to be used to bring together a buyer and seller.

"Internet pharmacy" means a pharmacy that delivers, distributes, or dispenses, by means of an Internet sale pursuant to a prescription drug order, a prescription product to a patient located in Iowa, whether the patient is human or animal. "Internet pharmacy" does not include a pharmacy that maintains an Internet site for the convenience of the pharmacy's patients to request a prescription refill or to request or retrieve drug information but requires that the filled prescription be delivered to the patient from the licensed physical location of the pharmacy.

"Internet sale" means a transaction, initiated via an Internet site, which includes the order of and the payment for a prescription drug product.

"Internet site" means a specific location on the Internet that is determined by Internet protocol numbers, by a domain name, or by both, including but not limited to domain names that use the designations ".com", ".edu", ".gov", ".org", and ".net".

"Iowa PMP" means the prescription monitoring program established pursuant to 657—Chapter 37.

"NABP" means the National Association of Boards of Pharmacy.

"Prescription product" means any prescription drug or device, including any controlled substance, as those terms are defined in Iowa Code section 155A.3.

"Vet-VIPPS accreditation" means that a pharmacy which dispenses prescription products for companion and non-food-producing animals has been evaluated by NABP and has been determined to be properly licensed and in compliance with federal and state laws, rules and regulations regarding the operation of a veterinary pharmacy.

"VIPPS" means verified Internet pharmacy practice site.

"VIPPS accreditation" means that a pharmacy has been evaluated by NABP and has been determined to be in compliance with federal and state laws, rules and regulations regarding the operation of a pharmacy and with NABP evaluation criteria. "VIPPS accreditation" includes Vet-VIPPS accreditation.

"VIPPS seal" means the symbol provided by NABP to a pharmacy for display on the pharmacy's Internet site evidencing the pharmacy's VIPPS accreditation.
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.3(155A) General requirements for Internet pharmacy. A pharmacy operating within or outside Iowa shall not provide any prescription product to any patient within Iowa through an Internet site or e-mail unless the pharmacy is in compliance with the provisions of this chapter.

24.3(1) *Pharmacy license.* A pharmacy, prior to providing any prescription drug, including any controlled substance, to any patient within Iowa, shall apply for, obtain, and maintain a pharmacy license pursuant to the provisions of rule 657—8.35(155A).

24.3(2) *Pharmacist license.* A pharmacist practicing in a pharmacy that provides any prescription drug, including any controlled substance, to any patient within Iowa shall be licensed by the pharmacist licensing authority in the state wherein the pharmacist practices.

24.3(3) *Iowa PMP.* A pharmacy located within Iowa that provides any controlled substance included in Schedules II through IV of Iowa Code chapter 124 to any patient within Iowa, unless the pharmacy is exempt from reporting pursuant to 657—subrule 37.3(1), shall report those dispensed prescriptions to the Iowa PMP as provided in rule 657—37.3(124).

24.3(4) *VIPPS accreditation.* An Internet pharmacy that provides any prescription drugs, including controlled substances, to any patient within Iowa shall obtain and maintain VIPPS accreditation and shall include evidence of such VIPPS accreditation on any Internet site identifying the pharmacy as provided in rule 657—24.7(155A).

[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.4 and **24.5** Reserved.

657—24.6(155A) Prescription requirements. A prescription drug order issued by an authorized prescriber shall comply with the requirements for a prescription identified in Iowa Code section 155A.27. No prescription product may be delivered, distributed, or dispensed by means of, through, or on behalf of an Internet site or by means of an e-mail communication without a valid prescription drug order.

24.6(1) *Prescriber licensed.* A prescriber who authorizes a prescription drug order through an Internet site or e-mail for a patient located in Iowa shall:

a. Be licensed by the licensing authority of the state in which the prescriber practices,

b. Be in compliance with all applicable federal and state laws, rules and regulations relating to the prescriber's practice, and

c. If the prescription drug order authorizes the dispensing of a controlled substance, be registered to prescribe controlled substances by the DEA and, if required, by the appropriate state agency or board.

24.6(2) *Pharmacist responsibility.* A licensed pharmacist practicing within or outside Iowa shall not fill a prescription drug order for a patient located in Iowa if the pharmacist knows or reasonably should have known that the prescription drug order was issued under both of the following conditions:

a. Solely on the basis of an Internet questionnaire, an Internet consultation, or a telephonic consultation, and

b. Without a valid patient-practitioner relationship.

[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.7(155A) Internet site registration. An Internet site that intends to display, advertise, or solicit the Internet sale of prescription products to patients in Iowa shall apply for, obtain, and maintain a pharmacy Internet site registration through the board. A pharmacy Internet site registration shall be issued to the Internet site by the domain name and the owner of the Internet site.

24.7(1) *Application for registration.* Application for registration and registration renewal shall be on forms provided by the board. The application form shall include the following information:

a. The common or searchable name, if such name exists, of the Internet site.

b. The domain name including "dot" extension of the Internet site.

c. The Internet protocol number of the Internet site.

d. The name and address of the owner or owners of the Internet site. If the owner is a corporation, the names and addresses of the officers and directors of the corporation shall be included. If the owner is a partnership or limited partnership, the names and addresses of all partners shall be included.

e. The name, address, and Iowa pharmacy license number of each Internet pharmacy that will be identified on the Internet site.

f. The signature of the owner of the Internet site or the signature of the owner's, partnership's or corporation's authorized representative and the date the application is signed.

24.7(2) *Timeliness of application.* An application for pharmacy Internet site registration or registration renewal shall be timely submitted to the board.

a. Existing Internet site. If the application is for registration of a pharmacy Internet site that is operational on or before February 1, 2012, the application and registration fee shall be due no later than May 1, 2012.

b. New Internet site. If the application is for registration of a new pharmacy Internet site that was not operational on or before February 1, 2012, the application and registration fee shall be due no less than 30 days prior to implementation of the Internet site.

c. Renewal. If the application is for renewal of an existing pharmacy Internet site registration, the application and registration fee shall be due prior to expiration of the current registration.

24.7(3) *Renewal of registration.* A pharmacy Internet site registration shall be annually renewed prior to expiration of the registration on December 31. Registration renewal shall require the completion of a renewal application form provided by the board. A completed application shall include payment of the renewal fee and any applicable late payment penalty fee. A registration that is not timely renewed shall be delinquent unless previously canceled by written notification to the board. If a pharmacy Internet site registration is canceled or delinquent, the Internet site shall discontinue association with any Internet pharmacy and shall discontinue the display, advertising, or solicitation of the Internet sale of prescription products to patients in Iowa.

24.7(4) *Fees and term of registration.* The following fees, as applicable, shall accompany an application for pharmacy Internet site registration or registration renewal:

a. Initial registration. The fee for initial registration of a pharmacy Internet site shall be $150. All registrations shall expire annually on December 31.

b. Registration renewal. The fee for renewal of a pharmacy Internet site registration shall be $150. Failure to renew a registration prior to expiration shall require payment of a late payment fee in the amount of $150 in addition to the renewal fee. Failure to renew a registration within 30 days following expiration shall require payment of a late payment fee in the amount of $250 in addition to the renewal fee. Failure to renew a registration within 60 days following expiration shall require payment of a late payment fee in the amount of $350 in addition to the renewal fee. Failure to renew a registration within 90 days following expiration shall require payment of a late payment fee in the amount of $450 in addition to the renewal fee. The total renewal and late payment fee shall not exceed $600. Failure to timely renew a registration may subject the registrant to disciplinary action.

24.7(5) *Internet site registration changes.* The board shall be notified as provided in this subrule within ten days of any of the following:

a. Change of domain name or Internet protocol number. Change of domain name or Internet protocol number requires completion and submission of a new registration application and payment of the registration fee within ten days.

b. Change of ownership. Change of ownership requires completion and submission of a new registration application and payment of the registration fee within ten days. The sale or transfer of all or a portion of the stock of a corporation, or a change of the individual partners comprising a partnership, shall not constitute a change of ownership provided the corporation or partnership that owns the Internet site continues to exist as the owner of the Internet site following the transaction.

c. Discontinuation of the registered pharmacy Internet site. Prior to discontinuation of a registered pharmacy Internet site but no later than 30 days prior to removal of the pharmacy Internet site from public access, written notification shall be provided to the board. The written notice shall include the domain name and the Internet protocol number of the Internet site, the registration number issued by the board to the pharmacy Internet site, the date the Internet site will be removed from Internet access, the reason for discontinuation of the Internet site, the date of the notice, and the signature of the owner or the owner's

authorized representative. If discontinuation of the Internet site also involves the sale or closing of a licensed pharmacy, the closing pharmacy shall comply with all requirements of 657—subrule 8.35(7).
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.8(155A) Internet site information. A pharmacy Internet site shall display on the home page of the Internet site or on a page directly linked to the home page the information identified in this rule. If the information is displayed on a page directly linked to the home page, the link on the home page shall be visible and clearly and conspicuously identified.

24.8(1) *Registration number.* The Internet site registration number shall be displayed. Display shall consist of the following statement or a statement substantially equivalent to the following statement: "In compliance with Iowa Code section 155A.13B and 657 IAC Chapter 24, this internet site is registered with the Iowa Board of Pharmacy, registration number ___."

24.8(2) *Pharmacy identification.* The following information shall be displayed for each pharmacy that delivers, distributes, or dispenses prescription drugs pursuant to orders made on, through, or on behalf of the Internet site:

a. The name of the pharmacy.

b. The address of the licensed physical location of the pharmacy.

c. The telephone number of the pharmacy.

d. The pharmacy license number issued to the pharmacy by the board.

24.8(3) *VIPPS accreditation.* The VIPPS seal shall be prominently displayed. The following links to information regarding the VIPPS accreditation maintained by each Internet pharmacy associated with the Internet site shall also be displayed.

a. A link to the NABP's VIPPS accreditation verification site.

b. A link to the certification issued by NABP which identifies the individual Internet pharmacy as a VIPPS-accredited site.

24.8(4) *DEA requirements relating to controlled substances.* A pharmacy Internet site identifying any pharmacy that dispenses controlled substances through the Internet site shall, in addition to the requirements of this rule for the posting of Internet site information, comply with DEA disclosure requirements found at 21 CFR 1304.45.
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.9 and **24.10** Reserved.

657—24.11(155A) Records. Records regarding the operation of a pharmacy and the dispensing of prescription products to patients within Iowa shall be maintained by each Internet pharmacy pursuant to the requirements of federal and state laws, rules and regulations. Required pharmacy and inventory records shall be available for inspection and copying by the board or its representative for at least two years from the date of the record or inventory unless a longer retention period is specified for a particular record or inventory.
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.12(155A) Pharmacy liability. An Internet pharmacy shall not disclaim, limit, or waive any liability to which the pharmacy otherwise is subject under law for the act or practice of selling, dispensing, distributing, or delivering prescription products to any patient in Iowa based on the patient's submission of the purchase order or refill request for the prescription product through an Internet site or by e-mail.
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.13(155A) Application denial.

24.13(1) The executive director or designee may deny an application for registration or renewal of a registration as a pharmacy Internet site for any violation of the laws of this state, another state, or the United States relating to prescription products, Internet pharmacy practices, or the distribution of prescription products utilizing the Internet or e-mail or for any violation of Iowa Code chapter 124, 124A, 124B, 126, 147, 155A, or 205 or any rule of the board.

24.13(2) An applicant whose application has been denied pursuant to this rule may, within 30 days after issuance of the notice of denial, appeal to the board for reconsideration of the application.
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

657—24.14(155A) Discipline.

24.14(1) *Internet site.* The board may impose discipline for any violation of the laws of this state, another state, or the United States relating to prescription products, Internet pharmacy practices, or the distribution of prescription products utilizing the Internet or e-mail or for any violation of Iowa Code chapter 124, 124A, 124B, 126, 147, 155A, or 205 or any rule of the board. The board may impose on the pharmacy Internet site registrant any disciplinary sanctions allowed by law as may be appropriate including, but not limited to, revocation of the registration, suspension of the registration for a specified period or until further order of the board, nonrenewal of a registration, the imposition of civil penalties not to exceed $25,000, or issuance of a citation and warning.

24.14(2) *Pharmacy, pharmacist, and other pharmacy staff.* The board may impose discipline for any violation of the laws of this state, another state, or the United States relating to prescription products, Internet pharmacy practices, or the distribution of prescription products utilizing the Internet or e-mail or for any violation of Iowa Code chapter 124, 124A, 124B, 126, 147, 155A, or 205 or any rule of the board. The board may impose on the pharmacy, pharmacist, or other registered pharmacy staff any disciplinary sanctions allowed by law as may be appropriate or as may be identified in Iowa law or rules of the board regarding sanctions that may be imposed on the specific license or registration.
[**ARC 9913B**, IAB 12/14/11, effective 2/1/12]

These rules are intended to implement Iowa Code section 155A.13B.

[Filed ARC 9913B (Notice ARC 9789B, IAB 10/5/11), IAB 12/14/11, effective 2/1/12]

PUBLIC SAFETY DEPARTMENT[661]

Rules transferred from agency number 680 to 661 to conform with the reorganization numbering scheme in general

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[Prior to 11/27/02, see rules 661—5.250(101) to 661—5.450(101)]
Rescinded IAB 12/14/11, effective 2/1/12

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CHAPTER 228
LIQUEFIED NATURAL GAS
[Prior to 12/14/11, see 661—Ch 51]

661—228.1(101) Transportation, storage, handling, and use of liquefied natural gas. NFPA 59A, "Standard for the Production, Storage and Handling of Liquefied Natural Gas (LNG)," 2009 edition, published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts, USA 02169-7471, is adopted by reference as the rules governing the transportation, storage, handling, and use of liquefied natural gas. Persons who transport, store, handle, or use liquefied natural gas shall comply with the applicable requirements established therein.

This rule is intended to implement Iowa Code chapter 101.

[**ARC 9927B**, IAB 12/14/11, effective 2/1/12]

[Filed ARC 9927B (Notice ARC 9765B, IAB 10/5/11), IAB 12/14/11, effective 2/1/12]

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CHAPTER 251
FIRE FIGHTER TRAINING AND CERTIFICATION
[Prior to 9/29/04, see 661—Ch 54]

661—251.1(100B) Definitions. The following definitions apply to rules 661—251.1(100B) to 251.204(100B):

"Emergency incident" means any incident involving a fire or other hazardous situation to which personnel of a fire department respond.

"NFPA" means the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269. References to the form "NFPA xx," where "xx" is a number, refer to the NFPA standard or pamphlet of the corresponding number.

"Structural fire fighting" means fire fighting in a hazardous environment which requires the use of self-contained breathing apparatus.

661—251.2 to **251.100** Reserved.

MINIMUM TRAINING STANDARDS

661—251.101(100B) Minimum training standard. Any member of a fire department shall have completed the training requirements identified in the job performance requirements for the fire fighter I classification in NFPA 1001, Standard for Fire Fighter Professional Qualifications, 2008 edition, chapter 5, prior to the member's engaging in structural fire fighting. Each fire department shall identify its members who are or will be engaged in structural fire fighting and shall ensure that any member engaged in structural fire fighting has completed the training requirements specified in this rule prior to the member's engaging in structural fire fighting.

NOTE: A fire fighter is not required to be certified to meet this requirement. Training to meet this requirement may be provided by the fire service training bureau, a community college, a regional fire training facility, or a local fire department, or any combination thereof.

EXCEPTION 1: A fire fighter who received training which complied with the job performance requirements for the fire fighter I classification contained in an earlier edition of NFPA 1001 shall be deemed to have met this requirement, provided that records documenting the training are maintained in accordance with rule 661—251.104(100B).

EXCEPTION 2: The chief or the training officer of any fire department may apply to the fire marshal by June 1 of any year for an extension of the deadline to meet the training requirement for members of the department engaged in structural fire fighting. Any such extension shall be for one year and may be renewed annually upon application. An extension shall be granted only if the department has requested training required under this rule, with training costs to be offset through funding from the fire fighting training and equipment fund, pursuant to 661—Chapter 259, and funds to offset the cost of the training have not been available or have been inadequate to fully offset the cost of the training. The extension may be for all or some of the fire fighters in the department. The application shall be in a form specified by the fire marshal and shall list by name each fire fighter for whom an extension is requested. The extension, if granted, shall list by name the fire fighters to whom the extension applies and shall apply only to those listed.
[**ARC 9928B**, IAB 12/14/11, effective 2/1/12]

661—251.102(100B) Other training. Any member of a fire department who serves in a capacity other than structural fire fighting at an emergency incident shall have received training based on the duties the member might perform at an emergency incident. Training to meet this requirement may be provided by the fire service training bureau, a community college, a regional fire training facility, or a local fire department, or any combination thereof.
[**ARC 9928B**, IAB 12/14/11, effective 2/1/12]

661—251.103(100B) Continuing training. Fire department members shall participate in at least 24 hours of continuing training annually, which shall be selected from the following subject areas:

1. Personal protective equipment and respiratory protection.
2. Structural fire fighting techniques including standard operating policies or standard operating guidelines.
3. Ground ladders.
4. Hose and hose appliances.
5. Ventilation.
6. Forcible entry.
7. Search and rescue techniques.
8. Fire fighter safety.
9. Incident management system or incident command system.
10. Emergency vehicle driver-operator.
11. Hazardous materials first responder—operations level.
12. Emergency medical service (EMS) training.
13. Additional training based on standard operating procedures or standard operating guidelines.
14. Other Occupational Safety and Health Administration (OSHA)-related training, such as blood-borne pathogen protection.
15. Specialty training such as confined space entry, vehicle extrication, rescue techniques, wildland or agricultural fire fighting techniques.
16. Emergency response to terrorism.
17. Any other training designed to meet local training needs.

NOTE: Training to meet this requirement may be provided by the fire service training bureau, a community college, a regional fire training facility, or a local fire department, or any combination thereof. [**ARC 9928B**, IAB 12/14/11, effective 2/1/12]

661—251.104(100B) Record keeping. Each fire department shall maintain training records for each individual member of the department who participates in emergency incidents. These training records shall identify, for all training completed by the individual fire fighter, the person or persons who provided the training, the dates during which the training was completed, the location or locations where the training was delivered, and a description of the content of the training.

661—251.105 to **251.200** Reserved.

FIRE FIGHTER CERTIFICATION

661—251.201(100B) Fire fighter certification program. There is established within the fire service training bureau of the fire marshal division a fire fighter certification program for the state of Iowa, which shall be known as the Iowa fire service certification system. The Iowa fire service certification system is accredited by the National Board on Fire Service Professional Qualifications (PROBOARD) and the International Fire Service Accreditation Congress (IFSAC) to certify fire service personnel to accepted national standards. All certifications issued by the Iowa fire service certification system shall be based upon nationally accepted standards.

NOTE 1: Participation in the Iowa fire service certification system is voluntary in that state law does not require certification to work or volunteer as a fire fighter in Iowa. However, some fire departments within the state require certification for continued employment or promotion. Inquiries regarding such requirements should be directed to the hiring or employing department.

NOTE 2: Inquiries and requests regarding the Iowa fire service certification system should be directed to Iowa Fire Service Certification System, Fire Service Training Bureau, 3100 Fire Service Road, Ames, Iowa 50010-3100. The bureau can be contacted by telephone at (888)469-2374 (toll-free) or at (515)294-6817, by fax at (800)722-7350 (toll-free) or (515)294-2156, or by electronic mail at fstbinfo@dps.state.ia.us. Further information can be found on the Web site for the fire service training bureau at www.state.ia.us/government/dps/fm/fstb.

251.201(1) *Eligibility.* Any person seeking certification through the Iowa fire service certification system shall be a current member of a fire, emergency, or rescue organization within the state of Iowa and shall be at least 18 years of age.

EXCEPTION: Persons not meeting the requirement of membership in a fire, emergency, or rescue organization may be granted exceptions to this requirement on an individual basis. Individuals seeking such exceptions shall address these requests to the fire service training bureau.

251.201(2) *Application.* Application forms for each level of fire fighter certification may be obtained from the fire service training bureau, or on the bureau's Web site at www.state.ia.us/government/dps/fm/fstb. In order to enter the certification program, an applicant shall submit a completed application, accompanied by the required fee, to the fire service training bureau. The fee must accompany the application form, although a purchase order from a public agency or private organization may be accepted in lieu of prior payment. The application and fee shall be submitted no less than two weeks prior to the date of any examination in which the applicant wishes to participate.

[**ARC 9928B**, IAB 12/14/11, effective 2/1/12]

661—251.202(100B) Certification standards. Standards for Iowa fire fighter certification are based upon nationally recognized standards established by the National Fire Protection Association (NFPA), 1 Batterymarch Park, P.O. Box 9101, Quincy, Massachusetts 02269-9101. Certification at each level in the Iowa fire service certification system results in national certification as well.

251.202(1) *Fire fighter.*

a. Fire fighter I. Certification as a fire fighter I is based upon the requirements for fire fighter I certification established in NFPA 1001, "Standard for Fire Fighter Professional Qualifications," 2008 edition, chapter 5.

b. Fire fighter II. Certification as a fire fighter II is based upon the requirements for fire fighter II certification established in NFPA 1001, "Standard for Fire Fighter Professional Qualifications," 2008 edition, chapter 6.

251.202(2) *Driver/operator.*

a. Driver/operator (pumper). Certification as a driver/operator (pumper) is based upon the requirements for fire department vehicle driver/operator (pumper) certification established in NFPA 1002, "Standard on Fire Apparatus Driver/Operator Professional Qualifications," 2009 edition, chapter 5.

b. Driver/operator (aerial). Certification as a driver/operator (aerial) is based upon the requirements for fire department vehicle driver/operator (aerial) certification established in NFPA 1002, "Standard on Fire Apparatus Driver/Operator Professional Qualifications," 2009 edition, chapter 6.

251.202(3) *Fire officer.*

a. Fire officer I. Certification as a fire officer I is based upon the requirements for fire officer I certification established in NFPA 1021, "Standard for Fire Officer Professional Qualifications," 2009 edition, chapter 4.

b. Fire officer II. Certification as a fire officer II is based upon the requirements for fire officer II certification established in NFPA 1021, "Standard for Fire Officer Professional Qualifications," 2009 edition, chapter 5.

251.202(4) *Fire inspector.* Certification as a fire inspector I is based upon the requirements for certification as a fire inspector I established in NFPA 1031, "Standard for Professional Qualifications for Fire Inspector and Plans Examiner," 2009 edition, chapter 4.

251.202(5) *Fire investigator.* Certification as a fire investigator is based upon the requirements for certification as a fire investigator established in NFPA 1033, "Standard for Professional Qualifications for Fire Investigator," 2009 edition, chapter 4.

251.202(6) *Fire service instructor.*

a. Fire service instructor I. Certification as a fire service instructor I is based upon the requirements for certification as a fire service instructor I established in NFPA 1041, "Standard for Fire Service Instructor Professional Qualifications," 2007 edition, chapter 4.

b. Fire service instructor II. Certification as a fire service instructor II is based upon the requirements for certification as a fire service instructor II established in NFPA 1041, "Standard for Fire Service Instructor Professional Qualifications," 2007 edition, chapter 5.

251.202(7) *Responder to hazardous materials incidents.*

a. Responder to hazardous materials incidents (awareness). Certification as a responder to hazardous materials incidents (awareness) is based upon the requirements for certification as a responder to hazardous materials incidents (awareness) established in NFPA 472, "Standard for Professional Competence of Responders to Hazardous Materials Incidents/Weapons of Mass Destruction Incidents," 2008 edition, chapter 4.

b. Responder to hazardous materials incidents (operations). Certification as a responder to hazardous materials incidents (operations) is based upon the requirements for certification as a responder to hazardous materials incidents (operations) established in NFPA 472, "Standard for Professional Competence of Responders to Hazardous Materials Incidents/Weapons of Mass Destruction Incidents," 2008 edition, chapter 5, sections 6.2 through 6.2.5.1 and sections 6.4 through 6.4.6.1.

[**ARC 8302B**, IAB 11/18/09, effective 1/1/10]

661—251.203(100B) Fees. Current certification application fees and any other fees related to participation in the certification process shall be listed in the publication Certification Procedures Guide for each level of certification, published by the fire service training bureau and available on request from the fire service training bureau. The information in each guide shall be effective upon publication until superseded by publication of a later edition. Prospective candidates who are considering application for a particular level of certification should contact the fire service training bureau for the latest date of publication of the Certification Procedures Guide.

Fees may be paid by personal check made payable to Iowa Department of Public Safety—Fire Service Training Bureau, credit card, purchase order from a public agency or private organization, check or draft from a public agency or private organization, or money order. The check, credit card information, purchase order, money order or draft shall be submitted with the application.

661—251.204(100B) Certification, denial, and revocation of certification.

251.204(1) *Certification.* Upon completion of the requirements for certification, the applicant's name shall be entered into the Iowa certification database maintained by the fire service training bureau for the respective level of certification and into the certification databases maintained by the National Board on Fire Service Professional Qualifications (PROBOARD) and the International Fire Service Accreditation Congress (IFSAC). Individuals who successfully complete the certification requirements shall also receive an individualized certificate awarding national certification from the fire service training bureau, which will bear numbered seals from the PROBOARD and the IFSAC, and additional insignia from the fire service training bureau.

251.204(2) *Denial of certification.* Certification shall be denied to any applicant who fails to meet all of the requirements for the type of certification, who knowingly submits false information to the fire service training bureau, or who engages in fraudulent activity during the certification process.

251.204(3) *Revocation.* The fire marshal may revoke the certification of any individual who is found to have knowingly provided false information to the fire service training bureau during the certification process or to have engaged in fraudulent activity during the certification process.

251.204(4) *Appeals.* Any person who is denied certification or whose certification is revoked may appeal the denial or revocation. An appeal of a denial or revocation of certification shall be made to the commissioner of public safety within 30 days of the issuance of the denial or revocation using the contested case procedures specified in 661—Chapter 10.

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